II. ACTIVE RESIDENTIAL PROGRAMS

2002 RESIDENTIAL HIGHLIGHTS

Seattle City Light provides energy efficiency programs and services to residential (single-family and multifamily) customers, and staffs a telephone Conservation Help Line to provide conservation information and respond to inquiries about conservation. The primary focus of Residential sector activity in 2002 was on completion of conservation projects that are eligible for BPA funds under the Conservation Augmentation agreement.

In 2002, City Light acquired 2.9 average megawatts (aMW) from authorized and contracted energy savings projects with residential customers (1.9 aMW), as well as efficient lighting retail sales due to utility programs (1.0 aMW). In doing so the utility acquired 32% of the conservation savings goal (9.0 aMW) and 171% of the Residential sector goal (1.7 aMW). These savings came from:

- Promoting efficient lighting technologies and appliances such as compact fluorescent light bulbs, washing machines and water heaters;
- Implementing beat-the-code measures in new and rehabilitated multifamily buildings, both market-rate and affordable housing;
- Retrofitting existing multifamily buildings with efficient windows, insulation and lighting;
- Assisting low-income customers through programs administered by the Office of Housing;
- Helping single-family households assess their resource use and practices; and,
- Promoting conservation and community building for Seattle neighborhoods;

City Light continues innovating to meet customer needs and deliver services more cost-effectively. These changes were driven recently by the West Coast energy crisis of 2000-2001, renewal of BPA funds for conservation augmentation, increased pressure on affordable housing markets, and customer values for environmental stewardship. There were several noteworthy developments in 2002 for residential customers.

2002 RESIDENTIAL HIGHLIGHTS

Figure 12

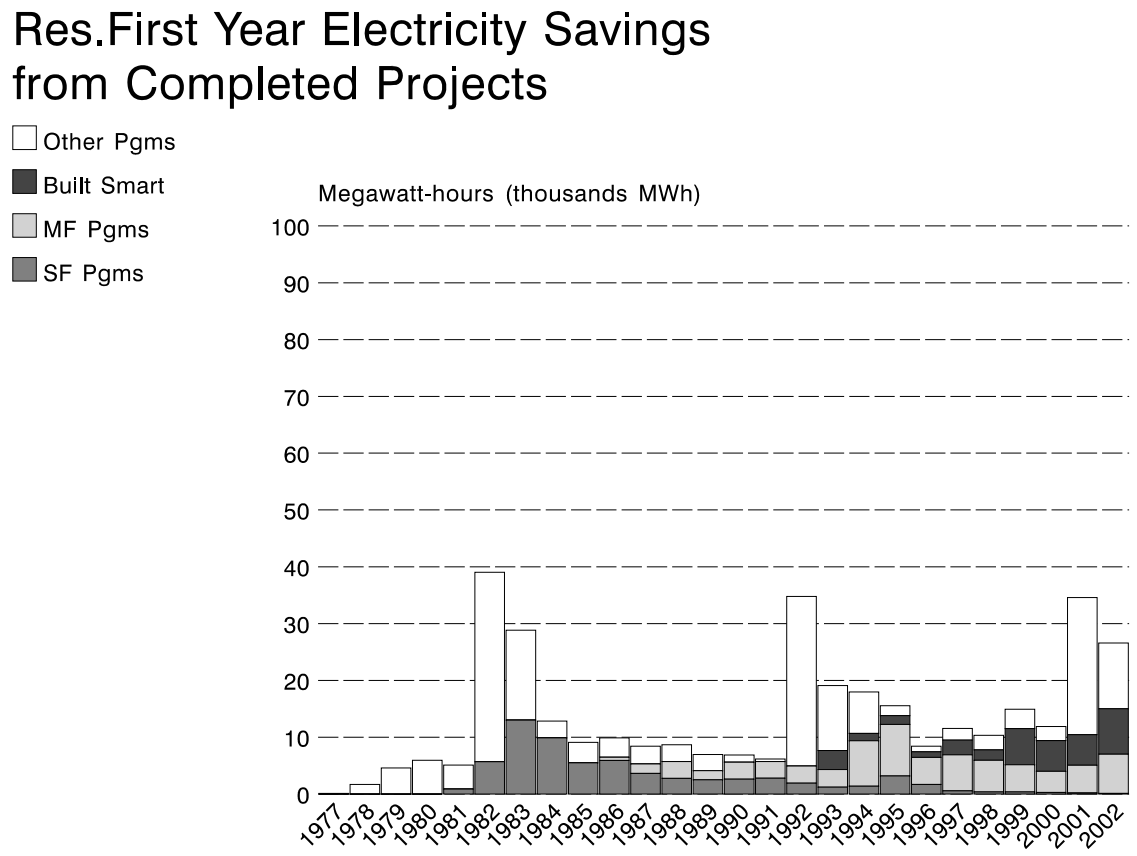

Figure 12 shows first year energy savings from projects completed in Residential programs from 1977 through 2002. Beginning in 1989, shaded areas represent the variety of services to existing and new construction residential buildings delivered through the Home Energy Loan (discontinued) and Low Income Electric Programs for single family homes, as well as the Multifamily Conservation Programs (existing buildings) and Built Smart (new construction). All told, these four programs are responsible for delivering 1,740,494 MWh of energy savings to date, and reducing the utility system load by 21.3 aMW in 2002. Meanwhile, other Residential programs have delivered 1,461,570 MWh of energy saving to date, and reduced the system load by 13.2 aMW in 2002. Annual acquisition levels from other programs hit peaks in 1982-1983 with the Blanket Seattle water-heater wrap program, in 1992 with Home Water Savers (showerheads), in 2001 with Conservation Kits (compact fluorescent lights), and 'spillover' CF bulb purchasing in 2002.

2002 RESIDENTIAL HIGHLIGHTS

New Construction: Despite the economic downturn in 2001, program contracting activity in the multifamily new construction market has not yet slowed. City Light focused on serving as many new construction projects as possible (about 90% of permits), both in the market rate and affordable housing areas. These projects represent 'lost opportunities' if they are not made as efficient as possible when they are built, because it would be much more expensive or even impractical to retrofit them later. In 2002 the program workload and activity remained busy, but construction began slowing with the economy and inspections were down compared to past years.

In mid-1997, the revised Built Smart Program was launched to replace the Long-Term Super Good Cents Program formerly sponsored by the Bonneville Power Administration (BPA). The programs provide incentives and services to build new resource efficient apartment buildings to standards that exceed those of the Washington State and Seattle Energy Codes. Built Smart adds water and solid waste recycling solutions to the energy efficiency package, addressing both the construction and occupancy phases of each project. Incentive payments are determined by square footage and by fixture or appliance affected.

For electrically-heated low-rise multifamily buildings, the Built Smart Program provides financial incentives to developers for going beyond energy code requirements for the building shell, including windows and insulation, as well as for efficient lighting. Efficient lighting funds are also available to projects not eligible for shell measures, including steel-frame high-rises and gas-heated buildings. During 1999-2002 City Light significantly expanded goals in the new construction area and shifted staff from multifamily retrofit programs to meet increased demand. Programs now target some niches that were not being served adequately as new construction activity grew, including smaller projects, projects in the suburban cities, as well as efficient lighting and appliances in gas-heated and high-rise multifamily buildings. During 2000-2001 research was performed on potential shell-insulation incentives for steel-frame new construction projects, which the program is seeing more often in the service area.

New program components added in 1999 include Built Smart–Affordable Housing and Built Smart–Lighting Only. Affordable Housing provides specialized new-construction and rehabilitation incentives to builders/developers of low-income multifamily housing with electric space heat. Incentives are offered on a square-footage basis. Lighting & Appliance Options provides incentives for installing energy efficient lighting fixtures in common areas of multifamily buildings that do not receive or are ineligible for full Built Smart incentives. These include buildings with gas space heat or steel framing. High-rise steel-framed buildings are encouraged to apply for efficient water heater rebates through the EEWHRP program, and also were offered incentives in 2001 for qualifying models of appliances such as dishwashers and refrigerators. Lighting services for multifamily new construction have been redesigned based on the new energy code changes that took effect July 2001.

2002 RESIDENTIAL HIGHLIGHTS

Affordable Housing. City Light has been providing energy efficiency to new affordable housing projects through the Built Smart program for several years. However, in 1999 the Built Smart for Affordable Housing program was developed as a new strategy for reaching this growing market niche. It serves new construction and major rehabilitation projects developed by non-profit low-income housing developers or government agencies by offering customized technical assistance as well as financial incentives. Like new construction, major rehab projects are potential lost opportunities if not served when the building is being rehabilitated.

Combined Programs. Overall, efforts in multifamily new construction (including affordable housing) accounted for 0.91 aMW and 30% of Seattle City Light's residential energy savings. Staff contracted for 57 comprehensive Built Smart projects with 2,004 residential units of market-rate new construction. Also contracted for Lighting Only measures were 9 low-rise projects/buildings with 663 units and 2 high-rise projects/buildings with 276 units. During 2002, 16 Affordable Housing projects were contracted containing 551 units of low-income housing.

In 2002 the combined programs contracted 84 multifamily buildings (3,494 units total) for construction under the stringent program energy standards, meeting the goal for multifamily new building savings. Two-fifths of these contracted units were in affordable low-income housing starts and other buildings receiving only lighting measures. Construction was completed on 52 new buildings (3,767 units) in the combined Built Smart programs during 2002. Staff continued to work with developers to ensure that energy efficient building practices that 'beat the code' are included in the planning stage of new apartment buildings and multi-unit condominiums. Seattle's Built Smart Program is popular with the architectural and apartment development community.

Building Codes. The City of Seattle supports strong building codes to promote energy efficient construction. This support has been going on for well over a decade. The Department of Design, Construction and Land Use (DCLU) develops and enforces City codes, while the City Light Department supplies financial resources for training, technical assistance, and inspection-based enforcement. In 1994-1995 the BPA also provided incentive money to encourage builders to adopt newer technology solutions. In 1995 the Washington Quality Assurance Evaluation for Non-Residential Energy Codes found Seattle to have the highest compliance (100%) in the Northwest—double the rate in the rest of the region. During 1998-2002, staff of the Built Smart Program worked with DCLU on Seattle and State energy code changes, and were active in the City Sustainable Building Task Force. Seattle is proud to keep this link strong in the construction market transformation chain.

Weatherization and Retrofit Lighting: Retrofit projects are those that are undertaken specifically to install energy efficiency measures such as windows, insulation, or lighting that are

2002 RESIDENTIAL HIGHLIGHTS

not associated with the larger repair or rehabilitation of a building. City Light continued to provide energy efficiency to existing apartments and condominiums through two multifamily retrofit programs. The Multifamily Conservation program provides windows, insulation, and lighting for older buildings with non-low-income tenants. The Common Area Lighting program provides efficient lighting for buildings built after 1980 when the energy code first required the use of double-pane windows. During 2002 through these two programs City Light authorized and *contracted* energy efficiency measures for 3,391 residential units in 108 existing multifamily buildings, saving about 0.40 aMW and generating 13% of City Light's residential energy savings.

Multifamily Weatherization. The Multifamily Conservation Program for standard-income buildings continues to be popular with apartment owners and has a healthy waiting list. It offers cash discounts for insulation, efficient windows, and lighting. Seattle's bread-and-butter residential retrofit program *completed* weatherization and installation of efficient lighting in 88 standard-income buildings (1,388 units) during 2002. Multi-resource Green Audits were added to the program in 1996. City Light's multifamily program gives out information on recycling and tests for toilet leaks, in cooperation with Seattle Solid Waste and Seattle Water, of the Seattle Public Utilities Department.

Multifamily Lighting. The Multifamily Common-Area Lighting Program attracts condominium and apartment owners who do not need weatherization measures and still want to save on bills. Efficient lighting-only retrofits were *completed* during 2002 in the common areas of an additional 45 buildings (2,257 units). Owners receive cash discounts for replacing incandescent or inefficient fluorescent lighting in exterior and interior common areas of multifamily buildings.

Low-Income Weatherization and Lighting. Seattle City Light provided approximately $1.7 million for the low-income weatherization programs administered and operated by the Office of Housing (OH, formerly the Department of Housing and Human Services). City Light funding of OH services offers weatherization for both electrically heated single-family homes and multifamily buildings whose owners or tenants meet income eligibility guidelines. This program serves buildings where half of tenants fall below the poverty level. City Light funds also reimburse OH administrative expenses.

During 2002 OH committed City Light funding for weatherization of 8 buildings with 619 units of multifamily housing. At the request of OH, in 1999 the 20% owner contribution requirement for window replacement in the multifamily program was eliminated as a way to help overcome barriers to participation including the tight multifamily housing market and the three-year covenant requiring owners to maintain the housing as low-income. Current income guidelines have been identified as another barrier to increased program participation, along with the

2002 RESIDENTIAL HIGHLIGHTS

relatively high degree of market penetration of the programs in both the single- and multifamily sectors. These income guidelines were revised in 2001 by action of the Seattle City Council.

In addition, the Office of Housing through the Low-Income Electric Program (*LIEP*) weatherized 56 units in 44 low-income single family and two- to four-unit homes. The pool of eligible low-income buildings nears saturation after twenty-two years of program operation (seventeen in the multifamily sector), as well as an economy that has reduced the quantity of housing that remains affordable to low-income residents.

Utility Tax Funds for Low-Income Retrofits. The utility was particularly interested in assisting low-income customers as utility rates escalated up and down the West Coast during 2001. City Light held low-income rates down to prior levels, at half of standard residential rates, while other utility rates increased. What is more, Council Ordinance 120322, passed in April 2001, allocated $1.1 million of utility B&O tax funds to additional energy conservation efforts targeted towards low-income housing providers and the facilities they operate. Of the $1.1 million total, $1,060,000 was targeted towards purchase and installation of energy efficiency measures in low-income housing. Through the end of 2002, $985,467 was spent on these activities.

City Light and the Office of Housing (OH) completed this work during 2001-2002. OH completed common-area lighting retrofits in the buildings of non-profit housing providers, members of the private-sector Low Income Housing Development Corporation. City Light worked directly with King County Housing Authority (KCHA) and Seattle Housing Authority (SHA) to have common area lighting replaced in 11 and 26 of their buildings respectively. In addition to the lighting retrofits, 4,800 electric baseboard thermostats were replaced in buildings owned by six non-profit housing providers and SHA. Altogether, this effort involved over 126 buildings (7,092 units) owned or managed by 16 non-profit housing providers in Seattle City Light's service territory, plus the two housing authorities. Energy savings of over 2,160 MWh per year are the result. During 2001 City Light also provided some 32,000 compact fluorescent bulbs to low-income housing providers for distribution to their residents.

The conservation funded by utility tax moneys will result in significant energy and cost savings for the low-income housing providers being served and their residents. In addition, it has also resulted in increased collaborative opportunities between the housing providers and City departments (including Seattle Public Utilities, who joined City Light and OH in promoting water conservation efforts). The survey process initiated to plan and target use of the utility tax funds has also enabled OH to identify a large pool of additional buildings now eligible for service through the regular low-income multifamily conservation program under the more liberal income guidelines adopted in 2001 by the City Council.

2002 RESIDENTIAL HIGHLIGHTS

Smaller Residences. In 1994 and 1995 the Warm Home Program was offered to residents of one- to four-unit buildings heated by electricity. The program was designed to attract customers with moderate or near-low incomes. This program was scaled back in 1996-2002 to offer Neighborhood Power Weatherization services only to residents of selected neighborhoods targeted by the Neighborhood Power Project. In 2002 the program arranged to weatherize 7 single-family residences. Staff also conducted 14 advisory Green Audits to set back water heater thermostats and to install compact fluorescent lamps and efficient-flow showerheads.

A special initiative was launched in 2001 to deliver Conservation Kits to 178,481 residential customers. This effort resulted in the installation of 299,632 compact fluorescent light bulbs and 92,810 efficient bathroom faucet aerators. Compact fluorescent bulbs were also distributed to another 39,800 customers through Block Watch captains for the annual 'Night Out', to attendees of a Mariners baseball game, and to low-income multifamily housing providers through the Office of Housing. These distributions resulted in the installation of 38,705 efficient bulbs. In 2002 another 7,004 bulbs were installed; the results of these initiatives are reported with the Neighborhood Power Programs.

Retail Lighting and Appliances: Begun in 1997, the LightWise, WashWise, and LaundryWise programs have been operating in conjunction with the Northwest Energy Efficiency Alliance (NEEA). The purpose of the Residential Retail-Wise programs is to increase the installation of energy efficient appliances and lighting during normal replacement (see SECTION II: ACTIVE RESIDENTIAL PROGRAMS). In addition to supporting the NEEA market transformation programs, Seattle City Light and Seattle Public Utilities offer direct rebates for qualifying laundry appliances. City Light also distributed retail discount coupons in 2001 for the purchase of EnergyStar compact fluorescent bulbs, resulting in 22,171 redemptions at local stores during 2001-2002, saving customers 1,463 MWh annually.

City Light provides marketing and promotional support for the NEEA Energy Star® Fixture and former LightWise programs to encourage awareness of and customer demand for compact fluorescent light bulbs and fixtures. Energy Star and LightWise are regional multi-utility programs that have offered reduced in-store prices on a variety of high quality compact fluorescent products. The price discounts are provided by Northwest utilities in collaboration with the NEEA. Qualifying products have been identified in the store by a yellow-and-black LightWise sticker on bulb packaging. The associated regional Energy Star labeling program does the same for compact fluorescent fixtures. In 1997-2000, LightWise and Energy Star brought 62,494 qualifying light-bulbs and 11,912 fixtures into stores in the Seattle City Light service area, potentially saving 4,836 megawatt-hours (MWh) per year when installed. The sponsors also held Torchiere Turn-in events in 1999, where customers hand over dangerous halogen floor lamps and replace them with discounted compact-fluorescent models. Meanwhile, the Conservation Kit program resulted in significant 'spillover' retail purchasing attributable to

2002 RESIDENTIAL HIGHLIGHTS

the influence of that program; during 2002 customers enjoyed savings of 9,070 MWh annually from the 166,418 Energy Star bulbs purchased in 2001.

WashWise is a regional, multi-utility program that offered instant, in-store rebates plus possible additional mail-in rebates on the purchase of new resource efficient clothes washers. All but one of the qualifying in-home models are front loaders, and all use a tumble action process to clean clothes. Tumble-action washers are preferred over conventional top-loading agitator models because qualifying machines typically use 60% less energy and 40% less water than standard models. Purchase prices are higher than for conventional machines with comparable features, but operating costs are lower in the long run. Direct financial support for program advertising comes from the NEEA. The Alliance also provided an in-store rebate of $130 during 1997, which was reset at $75 for 1998, then discontinued in September 1998 with the inauguration of NEEA's Energy Star labeling program.

Since then, Seattle City Light had offered a $50 mail-in rebate per qualifying installed clothes washer (fuel-blind), while Seattle Public Utilities (Water and Waste Water) matched this with an additional $50 mail-in rebate. The combined rebate was lowered to $75 during the first quarter of 2001. In 1997-2002 retailers sold 20,714 qualifying WashWise machines in the Seattle City Light service area, potentially saving over 3,935 MWh per year on electricity. Seattle City Light and Seattle Public Utilities continue to collaborate through the WashWise program to increase customer awareness of and demand for resource-efficient washing machines. In 2002 alone, the two utilities provided rebates for 4,611 machines purchased in City Light's service territory.

City Light also funds and administers the LaundryWise program, a collaborative effort by a number of Puget Sound area water and electric utilities to encourage the use of resource efficient washing machines in multifamily common-area laundries. The LaundryWise program offers incentives for installing coin-operated tumble-action clothes washing machines in these locations. Seattle City Light is responsible for marketing the laundry appliance program to customers and dealer participants, for database management and quality control. In 1997-2002 property managers installed 602 qualifying LaundryWise machines, acquiring 464 MWh in annual energy savings.

Water Heat: The Energy Efficient Water Heater Rebate Program was discontinued at the end of July 2002. During the first half of the year it continued to influence the tank replacement market, rebating 2,053 high-efficiency water heaters. During its eleven-year history (1992-2003) the program paid out 49,600 rebates and acquired 1.3 aMW of energy savings. The predecessor Water Heater Rebate Program operated for eight years (1983-1990), paid out 40,000 rebates and acquired 1.7 aMW at its peak production. Following the retreat of Bonneville Power Administration funding, the water heater market transformation program was scaled down for 1996-1999. Rebates were reduced from $60 to $30 for qualifying energy-efficient water heaters,

2002 RESIDENTIAL HIGHLIGHTS

to improve program cost-efficiency for Seattle. With the lower rebates, 1997-2002 program demand dropped to 40% of 1993-1995 levels. Even though rebates fell below program goals, informal research shows that many customers buying the efficient tanks did not follow through to obtain the rebate. The program contributed valuable data in support of federal rulemaking that resulted in new federal efficiency standards, equivalent to the program requirements, that will take effect in 2004. The limited remaining life of the program was one of the key reasons behind the decision to end it during 2002.

Household Information: The Residential Profile Service helps single-family households to assess their energy and water usage, along with solid waste practices. Based on actual billing histories, the service recommends ways for households to save on utility costs. In 1998 Seattle City Light in collaboration with Seattle Public Utilities conducted a trial of this service in two neighborhoods: Lake City (northeast Seattle) and Southeast Seattle (including Rainier Beach). Survey research and focus groups to help improve future offerings citywide accompanied the trial.

In 2001-2002 the free Residential Profile Service was offered to all residential customers, by mail and on the computer Internet. It provides participants with a personalized assessment of their energy and water usage, broken down by a variety of end-uses, the costs associated with each end-use, and recommendations for energy, water, and solid waste reductions. Customers participating in the service fill out a questionnaire about the characteristics of their home and about their energy and water use. The questionnaire is available in paper format and through the Internet. The consultant contracted to deliver the service analyzes the customer's responses and actual billing data. The consultant prepares a personalized report containing the results of the analysis, recommendations for reducing the customer's utility bills and resource use, and referrals to specific City programs.

Staff worked with the service delivery contractor and Seattle Public Utilities to customize the service, including the marketing materials, questionnaire, and customer report. During 2000 the service was marketed through bill-stuffers, and by direct mail to single-family households in targeted neighborhoods. Internet service is available to all residents; it has been marketed aggressively because the Internet web version is less expensive to deliver and provides powerful opportunities to link to City program sites and other information sources. There was increased demand in 2001 for the Home Resource Profile service, due to the Conservation Kit solicitation letter in early spring. Via the website 1,535 single-family residential customers filled out the survey, while another 177 completed paper surveys.

Community Neighborhoods: The Neighborhood Power program employs a community-based strategy to promote conservation and community-building programs in selected neighborhoods of Seattle. The project goal is to conserve valuable resources such as energy, water, and a clean

2002 RESIDENTIAL HIGHLIGHTS

environment. At the same time the project provides benefits to participating residents and business owners such as saving money on utility bills, improving comfort and safety, and building a stronger community. The interdepartmental Neighborhood Power efforts led by City Light support Seattle's objective of acquiring multi-resource conservation from residents and businesses. The neighborhood projects create partnerships between the City and the neighborhoods, and promote interdepartmental collaboration in meeting neighborhood needs.

Neighborhood Power solicits Environmental Action Pledges from neighborhood participants. Residents and business owners receive extensive energy, water, and solid waste reduction assistance. Residential customers are introduced to the Neighborhood Power Weatherization, Low-income Electric and Multifamily programs, as well as Energy Efficient Water Heater Rebates. Small commercial customers are introduced to the $mart Business Program.

The first Neighborhood Power project was conducted during 1995 in Seattle's Fremont (near north-central) district. During 1996-1997 a second project was offered in Georgetown / Beacon Hill / Maple Hill (south central). Seattle areas chosen for subsequent Neighborhood Power Projects were Lake City (northeast Seattle) in 1998, Rainier Beach / Southeast Seattle in 1999, Delridge / White Center / West Seattle (southwest Seattle) in 2000; and the Central Area east of downtown in 2001. The focus in 2002 turned to the Greenwood / Phinney Ridge neighborhood (northwest Seattle). The project ended successfully with conservation workshops conducted at the Phinney Neighborhood Association Center and at the High Point (affordable) housing development. Neighborhood Power collaborated with the Association to coordinate the Clean Seattle Initiative in the area.

High Bill Audits: During 2002, Community Conservation staff provided home energy audits for some of the customers who have called City Light about their high bills. The audit service is limited to those customers who are referred by the Hearing Officer or Customer Service management. Many of the customers who received audits called City Light because their winter consumption put them in the 'third tier' residential rate and their bills were much higher than the previous year. During 2002 approximately 50 high-bill audits were conducted.

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

Description

Long-Term Super Good Cents *(LTSGC)* and its successor, Built Smart, are "beat the code" programs designed to encourage builders of new multifamily residential dwellings with electric space heat to exceed provisions of the Washington State Energy Code and the Seattle Energy Code. The goal is to move the market toward more efficient construction practices. The Bonneville Power Administration offered Super Good Cents under the Residential Conservation Agreement. Seattle's *LTSGC* program started in October 1992, after a year of development. Partial funding for program development and promotion was provided by the BPA. Funding provided by the BPA via the Third Party Financing Agreement began in June 1994. In 1996 this program was fully funded by Seattle City Light.

Incentives are paid to builders for measures that upgrade the building shell, efficient thermostats, lighting measures, and efficient appliances such as water heaters, refrigerators and showerheads. Thermal envelope upgrades are based upon a prescriptive path of measures, or a computer analysis of heat loss and estimated savings per dwelling unit. Appliance upgrades are based upon efficiency ratings. Participants acquired by contract in 1992 to 1993 were defined as Tier I (all feasible measures) or Tier II (a proportion of feasible measures), with or without Add-ons (appliance measures). Beginning in BPA fiscal year 1994, reporting of participation was redefined as Option 1 (flat rate) or Option 2 (square-footage based) with added Optional Measures.

Seattle's "Super Good Cents" licensing agreement ended in June 1997. While projects contracted in 1994 through early 1997 continued construction under *LTSGC*, in mid-1997 the successor Built Smart Program was phased in. *Built Smart* provides builders with a simpler prescriptive path for energy efficiency compliance, with a per-square-foot (rather than per-unit) incentive structure that is more advantageous to builders. Through mid-2001 the lighting incentive continued to be calculated per-fixture, as in the *LTSGC* program structure. In July 2001 a new Seattle Energy Code requirement for common-area lighting went into effect for multifamily building permits. As a result, *Built Smart* dropped this as a mandatory measure, making higher-efficiency lighting (and controls) optional. Incentives are now offered based on calculated savings, rather than the former flat incentive per fixture, and are available for efficient in-unit lighting as well. *Built Smart* incorporates referrals for water conservation and waste recycling measures, during both the construction and occupancy stages of each project.

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

New program components implemented in 1999 include *Built Smart—Affordable Housing* and *Built Smart—Lighting & Appliance Options*. *Affordable Housing* provides specialized new-construction and rehabilitation incentives to builders/developers of low-income multifamily housing with electric space heat. Incentives are offered on a square-footage basis. *Lighting & Appliance Options* provides incentives for installing energy efficient lighting fixtures in common areas of multifamily buildings that do not receive or are ineligible for full Built Smart incentives. These include buildings with gas space heat or steel framing. High-rise steel-framed buildings are also offered incentives for qualifying models of appliances such as dishwashers and refrigerators, for efficient ventilation fan systems, and through mid-2002 were encouraged to apply for efficient water heater rebates through the *EEWHRP* program. Since that time, water heater rebates have been picked up by the *Built Smart* programs. In the following tables, the category *Add-ons Only* continues to refer to appliance and lighting measures installed in buildings not receiving shell measures.

Eligible Population

This program, as implemented by Seattle City Light, serves new-construction and major-rehabilitation multifamily buildings (of 5 units or more).

Lifetime of Conservation Measures Installed:

The lifetime of measures ranges from 50 years for dwelling-area shell measures to 16 years for common-area lighting; the weighted average lifetime is 33 years.

Electricity Savings

This section contains two tables. The first depicts projects contracted by City Light during the calendar year. This table shows the potential energy savings that will be realized when the projects are completed. Multifamily new construction projects may take up to two years to move from contract to completion, and not all proposed projects are actually built as scheduled. This table has been revised in each year to delete contracted projects awaiting construction that were terminated by the developer. The second table presents savings realized from projects completed during the calendar year. Savings estimates in both tables have been revised based on new documentation of energy conservation measure counts.

In 1992 the *LTSGC* program authorized incentives for multifamily new construction buildings that had not yet been completed and occupied, so there were no electricity savings realized in

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

that calendar year. Note that the energy savings (both MWh and aMW) reported in both tables reflect savings from current year participants as well as savings in that year from all prior participants for whom the measure lifetime has not yet expired. For a description of first-year savings from current year participants only, see the referenced footnotes.

The line titled "electricity savings since start of program" sums savings across all the years from program inception through the current reporting year. This illustrative construct exceeds the actual savings experienced in any given calendar year.

According to an evaluation done by Seattle City Light, the average unit in a new construction (1993-1994 participant) *LTSGC* multifamily building saves about 2,380 kilowatt-hours (kWh) per year. The average *Built Smart* participant receiving all potential measures would save about 2,600 kWh annually per average unit. Actual savings presented here are calculated by the mix of measure components installed during each program year.

In 2002 the energy savings from cumulative (1992-2002) *LTSGC* and *Built Smart* completed projects were 39,798 megawatt-hours (MWh). The load reduction in 2002 due to this program was 4.543 average megawatts (aMW).

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Contracted Projects —

Year	*Incentive Type*	*Contracted Buildings by Year* (1)	*Contracted Units by Year*	*Cumula-tive Units*	*kWh First Year Savings per Unit* (2)	*MWh Savings in Year* (2)	*Avg. MW Load Reduction in Year*
1992	Multifamily SGC	4	428	428	2,668	1,142	0.130
	Single Family	1	1	1	0	0	0.000
	Add-ons Only	1	6	6	1,565	9	0.001
	Annual Total	6	435	435	—	1,151	0.131
1993	Multifamily SGC	20	1,034	1,462	2,395	3,618	0.413
	Single Family	0	0	1	0	0	0.000
	Add-ons Only	9	654	660	454	306	0.035
	Annual Total	29	1,688	2,123	—	3,925	0.448
1994	Multifamily SGC	33	1,021	2,483	2,260	5,926	0.667
	Single Family	1	1	2	2,736	3	0.000
	Add-ons Only	0	0	660	0	306	0.035
	Annual Total	34	1,022	3,145	—	6,235	0.712
1995	Multifamily SGC	20	993	3,476	2,365	8,274	0.945
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	306	0.035
	Annual Total	20	993	4,138	—	8,583	0.980
1996	Multifamily SGC	52	1,593	5,069	1,707	10,994	1.255
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	306	0.035
	Annual Total	52	1,593	5,731	—	11,303	1.290
1997	Super Good Cents	17	628	5,699	2,531	12,587	1.436
	Add-ons Only	0	0	660	0	306	0.035
	Built Smart	2	112	112	2,594	290	0.033
	Annual Total	19	740	6,471	—	13,183	1.505
1998	Super Good Cents	1	47	5,746	0	12,716	1.451
	Add-ons Only	145	842	1,502	1,219	1,333	0.152
	Built Smart	46	1,637	1,749	2,563	4,420	0.505
	Annual Total	192	2,526	8,997	—	18,468	2.108
1999	Super Good Cents	0	0	5,746	0	12,716	1.451
	Add-ons Only	6	801	2,303	1,367	2,428	0.277
	Built Smart	47	2,033	3,782	2,500	9,502	1.085
	Annual Total	53	2,834	11,831	—	24,645	2.813

(Cont'd.)

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Contracted Projects —

(Continued)

Year	*Incentive Type*	*Contracted Buildings by Year* (1)	*Contracted Units by Year*	*Cumula-tive Units*	*kWh First Year Savings per Unit* (2)	*MWh Savings in Year* (2)	*Avg. MW Load Reduction in Year*
2000	Super Good Cents	0	0	5,746	0	12,716	1.451
	Add-ons Only	12	992	3,295	1,374	3,791	0.433
	Built Smart	62	2,065	5,847	2,529	14,724	1.681
	Annual Total	74	3,057	14,888	—	31,231	3.565
2001	Super Good Cents	0	0	5,746	0	12,716	1.451
	Add-ons Only	13	1,011	4,306	1,670	5,479	0.626
	Built Smart	44	2,501	8,348	2,505	20,990	2.396
	Annual Total	57	3,512	18,400	—	39,185	4.473
2002	Super Good Cents	0	0	5,746	0	12,716	1.451
	Add-ons Only	11	939	5,245	1,375	6,770	0.773
	Built Smart	73	2,555	10,903	2,456	27,266	3.113
	Annual Total	84	3,494	21,894	—	46,751	5.337
Potential Electricity Savings Since Start of Program:						**204,662**	**MWh**

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Completed Projects —

Year	*Incentive Type*	*Completed Buildings by Year* (1)	*Completed Units by Year*	*Cumula-tive Units*	*kWh First Year Savings per Unit* (2)	*MWh Savings in Year* (2)	*Avg. MW Load Reduction in Year*
1992	Multifamily SGC	0	0	0	0	0	0.000
	Single Family	1	1	1	0	0	0.000
	Add-ons Only	0	0	0	0	0	0.000
	Annual Total	1	1	1	—	0	0.000
1993	Multifamily SGC	16	1,115	1,115	2,405	2,682	0.306
	Single Family	0	0	1	0	0	0.000
	Add-ons Only	9	483	483	1,443	697	0.080
	Annual Total	25	1,598	1,599	—	3,379	0.386
1994	Multifamily SGC	12	514	1,629	2,466	3,949	0.451
	Single Family	1	1	2	2,736	3	0.000
	Add-ons Only	1	177	660	187	730	0.083
	Annual Total	14	692	2,291	—	4,682	0.535
1995	Multifamily SGC	24	666	2,295	2,310	5,488	0.626
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	730	0.083
	Annual Total	24	666	2,957	—	6,221	0.710
1996	Multifamily SGC	12	404	2,699	2,437	6,472	0.739
	Single Family	0	0	2	0	3	0.000
	Add-ons Only	0	0	660	0	730	0.083
	Annual Total	12	404	3,361	—	7,205	0.823
1997	Super Good Cents	48	1,108	3,809	2,322	9,047	1.032
	Add-ons Only	0	0	660	0	730	0.083
	Built Smart	1	8	8	2,600	21	0.002
	Annual Total	49	1,116	4,477	—	9,798	1.119
1998	Super Good Cents	21	807	4,616	2,017	10,676	1.218
	Add-ons Only	1	12	672	1,367	747	0.085
	Built Smart	10	77	85	2,517	215	0.025
	Annual Total	32	896	5,373	—	11,637	1.328
1999	Super Good Cents	12	1,050	5,666	2,385	13,180	1.504
	Add-ons Only	6	640	1,312	1,367	1,622	0.185
	Built Smart	39	1,176	1,261	2,526	3,186	0.364
	Annual Total	57	2,866	8,239	—	17,987	2.053

(Cont'd.)

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

ELECTRICITY SAVINGS FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Completed Projects —

(Continued)

Year	*Incentive Type*	*Completed Buildings by Year* (1)	*Completed Units by Year*	*Cumulative Units*	*kWh First Year Savings per Unit* (2)	*MWh Savings in Year* (2)	*Avg. MW Load Reduction in Year*
2000	Super Good Cents	1	20	5,686	2,745	13,235	1.511
	Add-ons Only	152	1,067	2,379	1,374	3,087	0.352
	Built Smart	38	1,537	2,798	2,528	7,072	0.807
	Annual Total	191	2,624	10,863	—	23,394	2.671
2001	Super Good Cents	0	0	5,686	0	13,235	1.511
	Add-ons Only	15	1,575	3,954	1,371	5,246	0.599
	Built Smart	62	2,484	5,282	2,513	13,314	1.520
	Annual Total	77	4,059	14,922	—	31,795	3.630
2002	Super Good Cents	0	0	5,686	0	13,235	1.511
	Add-ons Only	13	1,291	5,245	1,373	7,019	0.801
	Built Smart	39	2,476	7,758	2,517	19,545	2.231
	Annual Total	52	3,767	18,689	—	39,798	4.543
Electricity Savings Since Start of Program:						**155,896**	**MWh**

Program Expenditures

From 1992 through 2002, 617 active building contracts have been signed with multifamily new construction builders through the *LTSGC* and *Built Smart* Programs, amounting to $11,240,398 in builder incentives. Of these contracts, $2,859,275 in authorized incentives are for projects that are still planned but have not yet started or finished construction. Construction was completed during 1992-2002 on about 87% of the contracted units, for which incentives amounting to $8,381,123 have been paid to builders. Partial payments and accruals are still outstanding for several projects awaiting construction or in progress; including these accruals, expenditures to date through the end of 2002 are $8,704,606. Administrative expenses for the programs during the eight years were $4,864,752. Total expenditures during 1992-2002 of $13,569,359 represent the cost to the utility and not the total resource cost.

The Bonneville Power Administration provided $2,802,632 during 1992-1999 for program development, promotion, administration, and incentive payments. BPA funding was provided in 1992 at a 75% cost share, while from 1993 through 1998 the BPA provided 100% funding for allowable expenses. The final payment in 1999 brought to a close BPA sponsorship of the Long-Term Super Good Cents Program.

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

PROGRAM EXPENDITURES FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM (5)

Year	*Administration* (3)	*Incentive Payments to Participants*			*Total Expenditures*
		Contracted Projects (4)	*All Payments for Projects Completed in Year* (4)	*Actual Expenditures in Year* (4)	
1992	$56,824	$301,341	$2,000	$258,526	$315,350
1993	141,167	797,090	770,796	890,825	1,031,992
1994	171,168	701,530	344,475	174,370	345,538
1995	180,977	625,680	418,380	732,027	913,004
1996	303,606	953,705	261,950	357,138	660,744
1997	421,779	437,046	567,278	412,493	834,273
1998	461,391	1,119,876	484,534	687,224	1,148,615
1999	715,117	1,273,426	1,317,983	1,075,882	1,790,999
2000	768,206	1,592,226	1,006,075	979,603	1,747,809
2001	767,545	1,642,995	1,589,584	1,803,029	2,570,574
2002	876,972	1,795,483	1,618,069	1,333,489	2,210,461
Total	**$4,864,752**	**$11,240,398**	**$8,381,123**	**$8,704,606**	**$13,569,359**

FINANCIAL EFFICIENCY MEASURES FOR THE BUILT SMART / LONG-TERM SUPER GOOD CENTS PROGRAM — Per Completed Unit — (5)

Year	*Average Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as a % of Total Expenditures*
1992	$56,824	$2,000	$58,824	18.0%
1993	88	482	571	13.7
1994	247	498	745	49.5
1995	272	628	900	19.8
1996	752	648	1,400	45.9
1997	378	508	886	50.6
1998	515	541	1,056	40.2
1999	250	460	709	39.9
2000	293	383	676	44.0
2001	189	392	581	29.9
2002	233	430	662	39.7
Average 1992-2002	**$260**	**$448**	**$709**	**35.9%**

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

BPA FUNDING FOR THE LONG-TERM SUPER GOOD CENTS PROGRAM

Year	*Administration* (5)	*Incentives* (6)	*Total Funding*
1992	$11,250	$1,500	$12,750
1993	84,036	583,456	667,492
1994	9,320	533,815	543,135
1995	5,160	369,285	374,445
1996	0	204,615	204,615
1997	0	607,860	607,860
1998	0	353,585	353,585
1999	0	38,750	38,750
2000-2002	0	0	0
Total	**$109,766**	**$2,692,866**	**$2,802,632**

Notes

1. Data on the number of contracted and completed projects were obtained from contract and program files (Community Conservation Section), and from invoices to the Bonneville Power Administration.

   Participants include all new construction multifamily projects approved by City Light under the provisions of *LTSGC* and *Built Smart* during 1992-2002. Some of these projects have not yet been completed and occupied, as it is typical for a construction project to take one to four years from design stage to completion of construction. Participant figures include one manufactured home with zonal electric heat served under the BPA program promotion contract during second quarter 1992. Also, one single-family model conservation home was served in 1994. One project contracted in 1998, a 139-building complex, was completed in 2000.

2. BPA estimates of energy savings were based the following schedule: 510 kWh per residential unit in space heat savings for Tier I, Tier II, and Option 2 participants; 120 kWh per efficient refrigerator or freezer; 463 kWh per unit for internal lighting modifications; and 463 kWh per unit for external lighting modifications. These energy savings estimates were determined by the Policy and Planning Unit, based upon the Residential Conservation Agreement (RCA).

   An evaluation completed in 1996 found actual energy savings from the program, as implemented by Seattle City Light, be about two-thirds higher than BPA projections. Energy savings projections in these tables are derived from the *Impact Evaluation of the Long-Term Super Good Cents Multifamily Program* (November 1996). During 1995, participants with buildings completed in 1993-1994 saved an average of 2,380 kilowatt-hours per unit annually from building envelope, thermostat, and lighting conservation measures. The contribution of each measure type was (as a weighted average across building types): 1,110 kWh per residential unit in space heat savings; 60 kWh per unit for within-unit lighting modifications; and 1,210 kWh per unit for external lighting modifications in unconditioned common areas. Units receiving efficient refrigerators are still assumed to save 120 kWh based on the BPA estimates. Actual savings presented here are calculated by the mix of measure components installed during each program year.

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

Water heater savings were attributed to the Energy Efficient Water Heater Rebate Program in 1992-1996; savings from water heaters in served buildings are attributed to *Built Smart/LTSGC* in 1997-2002.

First year energy savings from new participants completing work in each year were: 0 MWh (1992); 3,379 MWh (1993); 1,304 MWh (1994); 1,538 MWh (1995); 985 MWh (1996); 2,593 MWh (1997); 1,838 MWh (1998); 6,351 MWh (1999); 5,407 MWh (2000); 8,401 MWh (2001); and 8,003 MWh (2002)

3. Seattle City Light received a grant from the BPA to develop this program. Planning grant activities ended in September 1992 with the signing of the RCA acquisition program contract with the BPA, which took effect in October 1992. The cost data reported in here for 1991-2002 are from the Seattle Financial Management System and Summit System for Work Order/Activity Nos. 70554, 70573, 70582, and 70587; plus water heater rebates through 1997 from Work Order/Activity No. 70577.

Administrative costs for 1993-2002 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1993 the A&G overhead charge for the *LTSGC* Program was $6,209, or 4% of total programmatic administrative expenditures; in 1994 it was $34,879 (21%); in 1995 it was $38,297 (21%).

4. One builder incentive payment of $2,000 was made for a manufactured house upgrade. No multifamily incentives were paid in 1992 because work contracted in 1992 was not yet completed by year end; 1992 dollars reported here represent accruals only. Expenses in 1993-1998 include both payments and accruals. Water heater incentives were paid through the Energy Efficient Water Heater Rebate Program through 1997; those amounts were transferred to the Built Smart Program measure expenditures. In 1998-2002 these incentives are accounted directly under the Built Smart Program.

Participants in the Built Smart Programs pay total installation costs directly to the contractor, while claiming allowed incentives from City Light. Based on the assumption that program incentives average about 80% of total installed costs, presented below are the estimated customer costs.

	Built Smart Programs	
	Annual	Cumulative
Year	Excess Cost	Excess Cost
1992	64,630	64,630
1993	222,800	287,430
1994	40,380	327,810
1995	183,010	510,820
1996	89,280	600,100
1997	103,120	703,220
1998	171,806	875,026
1999	268,524	1,153,550
2000	243,810	1,397,360
2001	438,770	1,826,130
2002	333,400	2,159,530

BUILT SMART & LONG-TERM SUPER GOOD CENTS PROGRAMS

5. Note that administrative costs generally would vary with projects contracted (since most labor occurs up to this stage), while measure costs would vary with completions (when payment for measures occurs); but this table indexes both types of costs to completions. Thus the 1992 financial efficiency measures are affected by the ramp-up in project starts. Average installation costs are calculated per "all payments for projects completed in year."

6. This amount in 1992 represents 75% of City Light's administrative expenses invoiced to the BPA. The BPA funded 100% of allowable administrative expenses in 1993-1995.

7. This incentive was funded in 1992 by the BPA at a 75% cost share with Seattle City Light, under the 1991-1992 program development and promotion grant. In 1993 incentive funding by the BPA was increased to 100% of incentives paid to building contractors.

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

Description

Begun in March 1992, the Energy Efficient Water Heater Rebate Program (*EEWHRP*) was operated in conjunction with the Bonneville Power Administration (BPA) through the Residential Conservation Agreement. Funding provided by the BPA via the Third Party Financing Agreement began in June 1994 and ended in 1996.

The purpose of *EEWHRP* rebates was to increase the installation of energy efficient electric water heaters during normal replacement. The BPA provided a $60 rebate per qualifying installed water heater; in 1995 the rebate was reduced to $30. The water heater must have an energy factor of 0.93 for tanks of 59 gallons or less, and 0.91 for tanks of 60 gallons or more (these values exceed current federal standards). While the BPA sent rebate checks directly to customers, Seattle City Light was responsible for marketing the program to customers and dealer participants, for database management and quality control. With the end of BPA participation, Seattle City Light operated and funded the $30 rebate program in 1996 through mid-2002, at which time *EEWHRP* was discontinued. The rebates ended because new federal efficiency standards go into effect in January 2004, requiring that electric water heaters be as efficient as those formerly required by *EEWHRP*.

City Light conducted the preceding Water Heater Rebate Program (*WHRP*) between 1983 and 1990 to promote installation of replacement water heaters that exceeded pre-1990 federal efficiency standards. For a description of *WHRP*, see the *Water Heater Rebate Program* in SECTION IV: DISCONTINUED RESIDENTIAL PROGRAMS.

Eligible Population

This program served the 316,758 utility customers residing in single-family homes, multiplexes, mobile homes, condominiums, and multifamily apartment buildings (including common area laundry rooms) within the Seattle City Light service area. A total population of 698,800 lives in Seattle City Light's 131 square mile service area. In 1994 the program began to serve Seattle's 30,839 commercial customers, as well, for replacement water heaters less than 120 gallons in size. (1)

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

Lifetime of Conservation Measures Installed: 12 years

Electricity Savings

The average single-family residence that participated in *EEWHRP* saves about 280 kilowatt-hours (kWh) per year. This represents one percent (1%) of the typical electrically-heated home's energy use (19,580 kWh in 1990); or two percent (2%) of electricity use in single-family homes heated by gas, oil, or another fuel (10,769 kWh in 1990). Over the past decade, single-family household electrical use has been declining; in 1998, the average home used 10-15% less than in 1990.

The average multiplex (two to four unit) or multifamily (five or more units) residence that participated in *EEWHRP* saves about 145 kWh per year. This represents two percent (2%) of the typical electrically-heated unit's energy use (8,938 kWh in 1990); or three percent (3%) of electricity use in a unit heated by gas, oil or another fuel (5,417 kWh in 1990).

The average small commercial business that participated in *EEWHRP* also saves about 145 kWh per year.

In 2002 the energy savings from cumulative (1992-2002) *EEWHRP* participants were 11,537 megawatt-hours (MWh). The load reduction in 2002 due to this program was 1.317 average megawatts (aMW).

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

Year	Buildings by Year	Partici-pants by Year (1)	Cumulative Participants	kWh Savings per Participant (2)	MWh Savings in Year (2)	Avg. MW Load Reduction in Year
1992	Single Family	3,512	3,512	280	983	0.112
	Multifamily	1,124	1,124	145	163	0.019
	Annual Total	4,636	4,636	—	1,146	0.131
1993	Single Family	5,594	9,106	280	2,550	0.291
	Multifamily	2,069	3,193	145	463	0.053
	Annual Total	7,663	12,299	—	3,013	0.344
1994	Single Family	5,245	14,351	280	4,018	0.459
	Multifamily	2,462	5,655	145	820	0.094
	Small Comrcl	31	31	145	4	0.001
	Annual Total	7,738	20,037	—	4,843	0.553
1995	Single Family	4,347	18,698	280	5,235	0.598
	Multiplex	385	385	145	56	0.006
	Multifamily	1,947	7,602	145	1,102	0.126
	Small Comrcl	83	114	145	17	0.002
	Annual Total	6,762	26,799	—	6,410	0.732
1996	Single Family	2,604	21,302	280	5,965	0.681
	Multiplex	375	760	145	110	0.013
	Multifamily	1,254	8,856	145	1,284	0.147
	Small Comrcl	56	170	145	25	0.003
	Annual Total	4,289	31,088	—	7,384	0.843
1997	Single Family	1,559	22,861	280	6,401	0.731
	Multiplex	213	973	145	141	0.016
	Multifamily	844	9,700	145	1,407	0.161
	Small Comrcl	32	202	145	29	0.003
	Annual Total	2,648	33,736	—	7,978	0.911
1998	Single Family	2,191	25,052	280	7,015	0.801
	Multiplex	277	1,250	145	181	0.021
	Multifamily	822	10,522	145	1,526	0.174
	Small Comrcl	40	242	145	35	0.004
	Annual Total	3,330	37,066	—	8,757	1.000
1999	Single Family	2,029	27,081	280	7,583	0.866
	Multiplex	252	1,502	145	218	0.025
	Multifamily	1,168	11,690	145	1,695	0.193
	Small Comrcl	29	271	145	39	0.004
	Annual Total	3,478	40,544	—	9,535	1.088

(Cont'd.)

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

ELECTRICITY SAVINGS FOR THE ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

(Continued)

Year	Buildings by Year	Partici-pants by Year (1)	Cumulative Participants	kWh Savings per Participant (2)	MWh Savings in Year (2)	Avg. MW Load Reduction in Year
2000	Single Family	1,900	28,981	280	8,115	0.926
	Multiplex	212	1,714	145	249	0.028
	Multifamily	1,285	12,975	145	1,881	0.215
	Small Comrcl	28	299	145	43	0.005
	Annual Total	3,425	43,969	—	10,288	1.174
2001	Single Family	2,057	31,038	280	8,691	0.992
	Multiplex	303	2,017	145	292	0.033
	Multifamily	1,183	14,158	145	2,053	0.234
	Small Comrcl	43	342	145	50	0.006
	Annual Total	3,586	47,555	—	11,086	1.265
2002	Single Family	1,141	32,179	280	9,010	1.029
	Multiplex	152	2,169	145	315	0.036
	Multifamily	736	14,894	145	2,160	0.247
	Small Comrcl	24	366	145	53	0.006
	Annual Total	2,053	49,608	—	11,537	1.317
Electricity Savings Since Start of Program:					**81,976**	**MWh**

Program Expenditures

From 1992 through mid-1996 the Bonneville Power Administration paid all rebates, in the amount of $1,728,030, directly to the customers. The Seattle City Light portion (25% of rebates during 1992) was reimbursed to the BPA, amounting to $69,540. This amount owed to the BPA in 1992 was credited against billings to the BPA under other programs included in the Residential Conservation Agreement; thus these rebate dollars do not appear in the City Light budget or cost accounting system as a measures cost.

In 1992-1995 the BPA funded a portion of City Light's administrative costs. The total Seattle City Light program expenditures in 1992-2002 were $1,652,844. This represents the cost to the utility, and not the total resource cost.

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

Year	*Administration* (3)	*Measures* (4)	*Total Expenditures*
1992	$84,192	—	$84,192
1993	149,874	360	150,234
1994	114,971	—	114,971
1995	93,238	3,720	96,958
1996	76,340	4,500	80,840
1997	97,927	79,440	177,367
1998	96,380	99,900	196,280
1999	94,149	104,340	198,489
2000	95,774	102,750	198,524
2001	106,950	107,580	214,530
2002	78,868	61,590	140,459
Total	**$1,088,663**	**$564,180**	**$1,652,844**

BPA FUNDING / REIMBURSEMENT TO SEATTLE CITY LIGHT FOR THE ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
1992	$49,190	$ – 69,540	$ – 20,350
1993	93,053	0	93,053
1994	62,283	0	62,283
1995	19,440	0	19,440
1996	– 780	0	– 780
1997-2002	0	0	0
Total	**$223,226**	**$ – 69,540**	**$153,686**

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

BPA DIRECT PAYMENTS TO SEATTLE CITY LIGHT CUSTOMERS FOR THE ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

Year	***Expenditures*** (7)
1992	$278,160
1993	459,420
1994	420,000
1995	446,280
1996	131,250
1997-2002	0
Total	**$1,735,110**

Notes

1. The eligible population figures are from the *Seattle City Light 2000 Annual Report* and from the *Seattle City Light Customer Information Guide* (December 1999).

   Participant figures include all rebates approved by City Light in 1992-1996, taken from Residential Conservation Agreement (RCA) monthly and year-end billings. Installation of rebated water heaters is verified by the BPA via a random selection process. Multifamily participants in 1992-1996 were identified by service address from Community Conservation Section records. Participants in 1997-2002 were identified from program databases and financial-system expenditure reports.

2. The energy savings per tank are based on projections of savings by the Program Development section. First year energy savings from new participants completing work in each year were: 1,146 MWh (1992); 1,866 MWh (1993); 1,830 MWh (1994); 1,567 MWh (1995); 973 MWh (1996); 594 MWh (1997); 779 MWh (1998); 778 MWh (1999); 753 MWh (2000); 798 MWh (2001);and 452 MWh (2002).

3. Cost data for 1991-2002 incorporate expenditures for administrative labor, office supplies, travel and printing. Cost data are from the Seattle Financial Management System and the Summit System for Work Order/Activity Nos. 70556 (1991-1997) and 70577 (1994-2002).

   Administrative costs for 1993-2002 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1993 the A&G overhead charge for the *EEWHRP* was $22,119, or 15% of total programmatic administrative expenditures; in 1994 it was $18,945 (16%); in 1995 it was $28,314 (29%).

4. The source of data on 1992 payments to the BPA by City Light for Seattle's 25% rebate cost-share is the Residential Energy Management Services Section, from RCA monthly and year-end billings. See Note 6 regarding measure costs. In 1993 City Light paid six rebates directly for water heaters installed in new construction projects participating in the Long Term Super Good Cents Program.

ENERGY EFFICIENT WATER HEATER REBATE PROGRAM

5. BPA funding was received for advertising, "Adcents" travel, and City Light's processing costs for rebate requests passed on in batches to the BPA. Rebates were allowed at $5.00 per rebate and in 1992 were cost shared by City Light 25% and the BPA 75%. In 1993 the BPA paid 100% of these administrative costs for 7,663 rebates, while in 1994 the BPA paid administrative expenses for 7,241 rebates. Administrative expenses were claimed by City Light for only the 3,888 rebates processed by June 30, 1995. The data on administrative funding are based on City Light invoices submitted to BPA by calendar year. This amount reflects only BPA funding for City Light's administrative expenses and excludes BPA administrative costs.

6. BPA funding in 1992 for 4,636 water heater rebates was calculated from Seattle City Light rebate refund payments to BPA, based on the cost share agreement. The source is Residential Energy Management Services Section records on BPA billings for calendar year 1992. This amount appears in the table as a negative number because it was reimbursed by City Light to the BPA, rather than the reverse as in other jointly sponsored programs. The form this reimbursement took was as a credit against billings to the BPA for funding of other programs under the Residential Conservation Agreement between the two utilities.

7. These rebate payments (number of participants x $60) were made by the BPA directly to program customers. In 1993 the BPA paid 100% of the rebates for 7,657 water heaters while City Light paid six rebates directly. In 1994 the BPA paid 100% of the rebates for 7,000 water heaters, for 7,438 water heaters in 1995, and for 4,139 in 1996. Meanwhile City Light picked up the cost of rebates in 1995 and 1996 for water heaters in LTSGC projects not covered by the BPA contract. SCL paid 100% of remaining 1996 rebates and all rebates issued in 1997-2002. This represents the total measure cost for the program.

LOW-INCOME ELECTRIC PROGRAM

Description

The Low-Income Electric Program (*LIEP*) was operated by the Department of Human Resources (DHR) from 1981 through 1990 and jointly administered with Seattle City Light. In 1991 the program was transferred to the Department of Community Development (DCD); in 1992 it was transferred once more, to the Department of Housing and Human Services (DHHS). At the end of 1998 a new City Office of Housing was established. Beginning in 1999, *LIEP* was operated by this Office as part of REACH services to low-income homes; in 2002 this service was renamed "HomeWise."

Through this program, weatherization grants are provided to low-income households for mandatory ceiling, wall, under-floor, and heating duct insulation; electric water heater insulation; and water heater thermostat setbacks. Optional measures include: floor insulation in unheated basements; caulking and weather-stripping; and some smoke detectors. Money for minor home repairs is included to ensure that the electricity savings are realized. Contractors are selected by the program through a public bidding process and are assigned to individual homes to install the measures, while DHHS/OH manages and pays the contractors. In 1995 window retrofits were added to the program as well as blower door testing and air sealing. Funds for minor repairs were pooled so they could be used most effectively. Additional program and administrative efficiencies were also instituted. Beginning 1996, however, window replacements were removed from *LIEP* following expiration of Bonneville Power Administration (BPA) funding. Competitive bidding coordinated through the Seattle Board of Public Works has been required for all DHHS/OH multifamily projects in 1996-2002.

In late 1982, the BPA began offering its regional Energy Buy Back (EBB) program. City Light participated in the EBB program in 1982 to 1983 and from October 1985 through 1996. As *LIEP* provided free weatherization to income-eligible participants, EBB payments from the BPA for weatherization were retained by City Light to offset expenses. In late 1991, City Light began participation in the BPA's Weatherwise funding program. Funding provided by the BPA via the Third Party Financing and Flexibility Agreements began in June 1994 and discontinued at the end of 1996.

LOW-INCOME ELECTRIC PROGRAM

Eligible Population

The eligible population for *LIEP* is low-income customers residing in electrically-heated homes (both owner-occupied and rented). Prior to 1986, only single-family homes were served. Beginning in 1986, multiplexes (with two to four residential units) also became eligible. Between 1981 and 1984, the *LIEP* household income limit was set at 90% of the SMSA median income. In 1985 the income limits were changed to 70% of the Washington State median income for owner-occupants and 125% of the federally defined poverty level for renters. In 2002 the income guidelines were redefined once more to 80% of the PMSA median income for owner-occupants and 60% of the PMSA median income for renters.

Lifetime of Conservation Measures Installed: 30 years

Electricity Savings

The average single-family building receiving a weatherization grant from *LIEP* during 1988-1994 saved about 2,450 kilowatt-hours (kWh) per year. These savings represented 13% of the typical electrically-heated single-family home's energy use (19,580 kWh in 1990). During 1995 savings were raised 3,366 kWh to incorporate the new window retrofit measure. This measure was dropped in 1996 and savings were revised to 1,839 kWh per year, in parallel with revisions to the Warm Home Program. These savings represent 10% of the typical home's energy use (18,363 kWh in 2000).

Multiplex buildings in this program save 1,308 kWh per unit annually during 1988-1994. These savings represent 10% of the typical electrically-heated multiplex's energy use (a weighted average across units of 12,493 kWh in 1990). During 1995 savings were raised to 1,757 kWh per unit to incorporate the new window retrofit measure. This measure was dropped in 1996 and savings were revised to 1,353 kWh per year, in parallel with revisions to the Warm Home Program. These savings represent 11% of the typical unit's energy use (12,374 kWh in 2000).

In 2002 the energy savings from cumulative (1981-2002) participants were 34,902 megawatt-hours (MWh). The load reduction in 2002 due to this program was 3.984 average megawatts (aMW).

LOW-INCOME ELECTRIC PROGRAM

ELECTRICITY SAVINGS FOR THE LOW-INCOME ELECTRIC PROGRAM

Year	*Building Type* (1)	*Buildings by Year* (2)	*Units by Year*	*kWh Savings per Bldg* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1981	Single Family	135	135	3,400	459	0.052
1982	Single Family	1,015	1,015	3,400	3,910	0.446
1983	Single Family	2,410	2,410	3,400	12,104	1.382
1984	Single Family	1,836	1,836	3,400	18,346	2.094
1985	Single Family	1,024	1,024	3,100	21,521	2.457
1986	Single Family	1,104	1,104	3,100	24,943	2.847
1987	Single Family	625	625	2,700	26,631	3.040
	Multiplex	61	197	4,224	258	0.029
	Annual Total	686	822	—	26,888	3.069
1988	Single Family	385	385	2,450	27,574	3.148
	Multiplex	66	171	3,389	481	0.055
	Annual Total	451	556	—	28,055	3.203
1989	Single Family	425	425	2,450	28,615	3.267
	Multiplex	73	182	3,261	719	0.082
	Annual Total	498	607	—	29,334	3.349
1990	Single Family	400	400	2,450	29,595	3.378
	Multiplex	51	120	3,078	876	0.100
	Annual Total	451	520	—	30,471	3.478
1991	Single Family	314	314	2,450	30,364	3.466
	Multiplex	57	166	3,809	1,093	0.125
	Annual Total	371	480	—	31,458	3.591
1992	Single Family	335	335	2,450	31,185	3.560
	Multiplex	31	76	3,207	1,193	0.136
	Annual Total	366	411	—	32,378	3.696
1993	Single Family	154	154	2,450	31,562	3.603
	Multiplex	18	50	3,633	1,258	0.144
	Annual Total	172	204	—	32,821	3.747
1994	Single Family	127	127	2,450	31,874	3.639
	Multiplex	27	80	3,876	1,363	0.156
	Annual Total	154	207	—	33,236	3.794

(Cont'd.)

LOW-INCOME ELECTRIC PROGRAM

ELECTRICITY SAVINGS FOR THE LOW-INCOME ELECTRIC PROGRAM

(Continued)

Year	*Building Type* (1)	*Buildings by Year* (2)	*Units by Year*	*kWh Savings per Bldg* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1995	Single Family	170	170	3,366	32,446	3.704
	Multiplex	19	56	5,179	1,461	0.167
	Annual Total	189	226	—	33,907	3.871
1996	Single Family	85	85	1,839	32,602	3.722
	Multiplex	7	20	3,866	1,488	0.170
	Annual Total	92	105	—	34,090	3.892
1997	Single Family	96	96	1,839	32,779	3.742
	Multiplex	6	18	4,059	1,513	0.173
	Annual Total	102	114	—	34,291	3.915
1998	Single Family	83	83	1,839	32,931	3.759
	Multiplex	9	22	3,307	1,543	0.176
	Annual Total	92	105	—	34,474	3.935
1999	Single Family	74	74	1,839	33,067	3.775
	Multiplex	4	10	3,838	1,556	0.178
	Annual Total	78	87	—	34,623	3.952
2000	Single Family	28	28	1,839	33,119	3.781
	Multiplex	5	12	3,247	1,572	0.179
	Annual Total	33	40	—	34,691	3.960
2001	Single Family	55	55	1,839	33,220	3.792
	Multiplex	4	12	4,059	1,589	1.181
	Annual Total	59	67	—	34,808	3.974
2002	Single Family	37	37	1,839	33,288	3.800
	Multiplex	7	19	3,672	1,614	0.184
	Annual Total	44	56	—	34,902	3.984
Program Totals 1981-2002:						
	Single Family	10,917	10,917	—	582,135	—
	Multiplex	445	1,211	—	19,577	—
	All Buildings	11,362	12,128	—	601,710	—
Electricity Savings Since Start of Program:					**601,713**	**MWh**

Program Expenditures

The program expenditures from 1981 through 2002 for administration and measures installation totaled $33,489,058. This represents the cost to the utility, and not the total resource cost. The average cost of measure installation per unit rose significantly in 1995 due to the introduction of

LOW-INCOME ELECTRIC PROGRAM

window retrofits in this year. The average cost dropped in 1996 when window measures were removed from the program offering, but rose again in 1997-2001 due to the adoption of public works bidding requirements, as recommended by the City Law Department, and particularly the effect of prevailing wage requirements.

The Bonneville Power Administration, during the period 1982 through 1998 (excluding 1984), provided $6,288,181 in funding.

PROGRAM EXPENDITURES FOR THE LOW-INCOME ELECTRIC PROGRAM

Year	*Seattle City Light Admini-stration* (4)	*Office of Housing Admini-stration* (5)	*Total Admini-stration*	*Measure Installation* (6)	*Total Expenditures*
1981	$465,530	$147,299	$612,829	$106,231	$719,060
1982	12,375	757,583	769,958	1,579,540	2,349,498
1983	83,221	996,339	1,079,560	3,531,382	4,610,942
1984	78,884	1,205,449	1,284,333	2,627,758	3,912,091
1985	101,827	1,336,903	1,438,730	2,220,759	3,659,489
1986	87,836	867,694	955,530	1,662,400	2,617,930
1987	44,415	702,353	746,768	1,242,000	1,988,768
1988	22,519	660,944	683,463	926,693	1,610,156
1989	38,357	703,178	741,535	897,995	1,639,530
1990	32,268	596,002	628,270	687,994	1,316,264
1991	35,819	635,485	671,304	740,139	1,411,443
1992	33,412	686,138	719,550	588,696	1,308,246
1993	49,704	370,914	420,618	306,941	727,559
1994	33,156	384,569	417,725	324,678	742,403
1995	24,904	529,750	554,654	819,524	1,374,178
1996	37,347	301,632	338,979	242,459	581,438
1997	27,842	299,504	327,346	415,011	742,357
1998	5,022	330,573	335,595	305,162	640,757
1999	4,151	125,427	129,578	329,688	459,266
2000	49,033	126,012	175,045	155,944	330,989
2001	4,280	171,904	176,184	219,578	395,855
2002	12,288	132,003	144,291	206,548	350,839
Total	**$1,284,190**	**$12,067,655**	**$13,351,845**	**$20,137,213**	**$33,489,058**

LOW-INCOME ELECTRIC PROGRAM

FINANCIAL EFFICIENCY MEASURES FOR THE LOW-INCOME ELECTRIC PROGRAM
— Per Completed Unit — (7)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as a % of Total Expenditures*
1981	$ 4,539	$ 787	$ 5,326	85.2%
1982	759	1,556	2,315	32.8
1983	448	1,465	1,913	23.4
1984	700	1,431	2,131	32.8
1985	1,405	2,169	3,574	39.3
1986	866	1,506	2,371	36.5
1987	908	1,511	2,419	37.5
1988	1,229	1,667	2,896	42.4
1989	1,222	1,479	2,701	45.2
1990	1,208	1,323	2,531	47.7
1991	1,399	1,542	2,941	47.6
1992	1,751	1,432	3,183	55.0
1993 (7)	2,062	1,505	3,566	57.8
1994	2,018	1,568	3,586	56.3
1995	2,454	3,626	6,080	40.4
1996	3,228	2,309	5,538	58.3
1997	2,871	3,640	6,512	44.1
1998	3,196	2,906	6,102	52.4
1999	1,543	3,925	5,467	28.2
2000	4,376	3,899	8,275	52.9
2001	2,630	3,279	5,908	44.5
2002	2,577	3,688	6,265	41.1
Average 1981-2002	**$1,106**	**$1,668**	**$2,774**	**39.9%**

LOW-INCOME ELECTRIC PROGRAM

BPA FUNDING FOR THE LOW-INCOME ELECTRIC PROGRAM (8)

Year	*Administration* (9)	*Weatherization*	*Total Funding*
1981	$0	$0	$0
1982	100,480	479,044	579,524
1983	250,720	1,425,234	1,675,954
1984	0	0	0
1985	11,620	29,540	41,160
1986	242,410	856,393	1,098,803
1987	107,365	402,790	510,155
1988	74,127	323,666	397,793
1989	42,705	272,473	315,178
1990	21,207	101,711	122,918
1991	33,556	214,469	248,025
1992	28,563	194,437	223,000
1993	43,027	248,579	291,606
1994	0	295,425	295,425
1995	8,820	224,631	233,451
1996	0	259,065	259,065
1997	0	– 1,282	– 1,282
1998	0	– 2,594	– 2,594
1999-2002	0	0	0
Total	**$964,600**	**$5,323,581**	**$6,288,181**

Notes

1. Multiplex buildings contain two to four residential units.

   The typical energy usage figures are from the Seattle City Light "1990 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 1992) and the "2000 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 2002.)

2. Participation figures include the number of homes where weatherization work was completed. These figures came from program records in the EMSD's Community Conservation Section.

LOW-INCOME ELECTRIC PROGRAM

From 1987 onward, the program has served 1,178 units in 433 multiplex buildings of these types:

	Duplexes	Triplexes	Fourplexes	Total Multiplexes	Total Units
1987	19	9	33	61	197
1988	45	3	18	66	171
1989	49	12	12	73	182
1990	39	6	6	51	120
1991	25	12	20	57	166
1992	19	10	2	31	76
1993	9	4	5	18	50
1994	12	4	11	27	80
1995	8	4	7	19	56
1996	6	0	2	7	20
1997	4	2	1	6	18
1998	7	0	2	9	22
1999	3	0	1	4	10
2000	3	2	0	5	12
2001	2	0	2	4	12
2002	3	3	1	7	19

3. Energy savings calculations for single-family buildings (1981-84) are documented in the *Evaluation of the Low-Income Electric Program* (July 1983). Buildings weatherized by *LIEP* typically save more energy than those weatherized by *HELP*, due to more measures found necessary for the *LIEP* participants.

   Program records for 1985 show a decrease of 28% in the number of homes receiving wall insulation compared to 1983. As a result, the average annual savings estimate for single-family buildings has been reduced by 300 kilowatt-hours for 1985 and 1986. A review of evaluations performed for the BPA's Residential Weatherization Program from 1986 through 1991, which included Seattle *LIEP* participants, and of the federal Weatherization Assistance Program, suggests that energy savings declined further to about 2,450 kWh in 1988 and later years. An intermediate value has been adopted for 1987 (2,700 kWh).

   With the addition of window retrofits in 1995, energy savings were revised upward to 3,366 kWh per single family unit. When the window measure was deleted for 1996-1997 and the program was restructured to parallel the Warm Home Program, energy savings were revised again to 1,839 kWh per single family unit.

   The average electricity savings per unit in 1987 for multiplex buildings in *HELP* were 1,308 annual kilowatt-hours (see *Energy Savings for Multiplex Buildings in the Home Energy Loan Program*, September 1988). With the addition of window retrofits in 1995, energy savings were revised upward to 1,757 kWh per multiplex unit. When the window measure was deleted for 1996-1997 and the program was restructured to parallel the Warm Home Program, energy savings were revised again to 1,353 kWh per multiplex unit.

LOW-INCOME ELECTRIC PROGRAM

The average annual electricity savings per multiplex building in *LIEP* were thus 4,224 kilowatt-hours in 1987; 3,389 in 1988; 3,261 in 1989; 3,078 in 1990; 3,809 in 1991; 3,207 in 1992; 3,633 in 1993; 3,876 in 1994; 5,179 in 1995; 3,866 in 1996; 4,059 kWh in 1997; 3,307 kWh in 1998; 3,383 kWh in 1999; 3,247 kWh in 2000; 4,059 kWh in 2001; and 3,672 kWh in 2002. Total savings from *LIEP* multiplex buildings in the first year after weatherization were estimated to be 258 megawatt-hours in 1987; 224 in 1988; 238 in 1989; 157 in 1990; 217 in 1991; 99 in 1992; 65 in 1993; 105 in 1994; 98 in 1995; 27 in 1996; 24 MWh in 1997; 30 MWh in 1998; 14 MWh in 1999; 16 MWh in 2000; 16 MWh in 2001; and 26 MWh in 2002.

First year energy savings from all new participants combined who completed work in each year were: 459 MWh (1981); 3,451 MWh (1982); 8,194 MWh (1983); 6,242 MWh (1984); 3,174 MWh (1985); 3,422 MWh (1986); 1,945 MWh (1987); 1,167 MWh (1988); 1,279 MWh (1989); 1,137 MWh (1990); 986 MWh (1991); 920 MWh (1992); 443 MWh (1993); 416 MWh (1994); 671 MWh (1995); 183 MWh (1996); 201 MWh (1997); 182 MWh (1998); 150 MWh (1999); 68 MWh (2000); 117 MWh (2001); and 94 MWh (2002).

4. Program expenditures for City Light EMSD administration includes the following: salaries, wages, and labor-related costs for field staff and office support; paid media space; contracted operations and maintenance; and data processing. In 2000 a special one-time payment was made to a Central Area youth organization to promote low-income assistance services and programs, including conservation programs, in that neighborhood.

   The source of these data from 1981 through 1990 is City Light MIS reports for Work Order No. 70578. City Light administrative costs were apportioned between *LIEP* and the Multifamily Conservation Program (*MFC*) in the same ratios described below in Note 5. Administrative cost data for 1991 through 2002 are from the Seattle Financial Management System and the Summit System for Work Order/Activity Nos. 70578 and 70514. These figures do not reflect BPA funding.

   Administrative costs for 1993-2002 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1993 the A&G overhead charge for the *LIEP* was $10,865, or 22% of Seattle City Light's total programmatic administrative expenditures; in 1994 it was $8,799 (27%); in 1995 it was $8,638 (35%).

5. Administrative direct cost data came from the DHHS/OH monthly invoices for labor, installation costs, and other program expenses. Beginning in 1986, the indirect administration charges were subtracted from the total to more closely match reported *HELP* costs (Office of Management and Budget (OMB) recommendation, May 1988). Beginning in 1993, the indirect charges are once again reported in this table, based on changes in Seattle City Light accounting for A&G service overhead charges in other programs. This change more closely matches reported *Warm Home Program* costs.

   The indirect charges were $234,872 in 1986; $146,797 in 1987; $112,722 in 1988; $99,273 in 1989; $100,922 in 1990; $190,015 in 1991; $243,136 in 1992; $58,373 in 1993; $61,212 in 1994; $52,373 in 1995; $41,335 in 1996; $39,207 in 1997; $40,854 in 1998; $14,153 in 1999; $14,649 in 2000; and $0 in 2001-2002.

LOW-INCOME ELECTRIC PROGRAM

Up until 1995, the DHHS did not separately account for administration costs between *LIEP* (serving single-family and multiplex buildings) and the DHHS Multifamily Conservation Program. Administration expenses from monthly invoices were allocated between *LIEP* and *MFC* in the proportions of 87/13 in 1986; 74/26 in 1987; 67/33 in 1988; 64/36 in 1989; 67/33 in 1990, 1991, and 1992; and 33/67 in 1993-1994 (according to the DHHS program manager and Contracts Section staff). Beginning in 1995, administrative costs were reported separately for the two low-income programs.

6. A change has been made in the method for calculating DHR/DCD installation expenditures for *LIEP* as reported for 1986 and later years. The *LIEP* expenditures reported in the table from 1981-1985 were based on the date of invoice payment by City Light. This method did not enable a comparison between annual budget goals and the reported program expenditures. For instance, most work contracted by DHR in the fourth quarter of 1984 (under the 1984 budget) was not actually paid until well into 1985. Therefore, program expenditures reported for 1985 combined the 1984 and 1985 budget years.

   A revised method for reporting installation expenditures has been used for 1986 and later years. Program expenditures are now reported by the year in which the funds are committed; e.g., expenditures reported in 1986 are for work orders released and costs allocated in 1986 regardless of whether City Light was invoiced by DHR in 1986 or 1987. Due to this change in calculation procedures, the 1985 figures now also include some expenditures allocated in 1985 but invoiced and paid in 1986; thus, 1985 expenses appear slightly inflated.

7. There is a discontinuity in this table due to the inclusion in 1993-1995 of indirect administrative costs that were formerly excluded (see Note 5). The City Light administrative cost in 2000 was elevated due to one-time marketing costs.

8. These data are based on invoices to the BPA. City Light did not participate in the regional EBB program in 1984. City Light began to participate in the BPA Weatherwise program in October 1991. The negative funding in 1997-1998 reflects invoice adjustments for year-end 1996, for residential units revealed by program audits to be non-electrically heated.

9. The BPA reimbursement also includes costs for radon monitoring, training, and water-heater tank wraps: $350 in 1985; $8,820 in 1986; $5,130 in 1987; $1,370 in 1988; $2,200 in 1989; $860 in 1990 (for radon monitoring only); $690 in 1991; $265 in 1992 (for radon monitoring and tank wraps); and none in 1993-1996.

MULTIFAMILY CONSERVATION PROGRAMS

Description

The Multifamily Conservation Programs (*MFCP*) began in 1986. They were preceded by a 15-building research and demonstration project in 1985. The *MFCP* provides financial and technical help to owners of apartment buildings with electric space heat, for building insulation, lighting and hot-water conservation measures. The multifamily buildings retrofitted through these programs have five or more units. The available conservation measures include: double-glazed replacement windows; attic or flat roof insulation, under-floor insulation, wall insulation; caulking and weather-stripping; efficient-flow showerheads, water heater temperature setbacks, pipe and duct wraps; and common-area lighting modifications. In the early years of the program, measures also included window conversions and water heater insulation wraps. Window conversion and storm window retrofits have not been allowed since 1992 under NFRC (National Fenestration Rating Council) requirements. Actual measures installed depend upon the condition of the building, feasibility and cost effectiveness, and owner preferences.

Partial funding has been received from the Bonneville Power Administration (BPA) through its regional Energy Buy Back (EBB) program in 1986-1991, and through the Weatherwise funding program in 1991-1993. In 1986 the BPA reimbursed a percentage of weatherization costs, resulting in lower loan balances for standard-income building owners and defraying some program costs for low-income building grants. A new Targeted Acquisition contract was signed in March 1993 between Seattle City Light and the Bonneville Power Administration. Under this contract, the BPA funded measures installed by the Common-Area Lighting and Standard-Income (whole-building) Programs. Funding continued under the BPA Weatherwise program for measures installed by the Low-Income (whole-building) Program. Funding provided by the BPA via the Third Party Financing and Flexibility Agreements began in June 1994 and was discontinued by 1998.

Low-Income Program: Owners of multifamily buildings with predominantly low-income tenants were referred to the Department of Human Resources (DHR) from 1986 through 1990 for weatherization, in a program jointly administered with and funded by Seattle City Light. In 1991 the program was transferred to the Department of Community Development (DCD); and in 1992 it was incorporated into the Department of Housing and Human Services (DHHS). At the end of 1998 a new City Office of Housing was established. Beginning in 1999, the Low-Income Multifamily Program is being operated by this Office as part of REACH (now called HomeWise) services to low-income tenants. From 1981 through 1995, low-income building owners received a full-cost grant, conditional upon agreement by the owner not to raise rents due to conservation

MULTIFAMILY CONSERVATION PROGRAMS

measures for a period of five years. In 2002 the period of this "covenant" will rise to ten years. Beginning in 1996 owners were required to pay 20% of window costs; this cost-sharing requirement was dropped at the end of 1998 in response to difficulties in recruiting participants.

In the Low-Income Multifamily Program, contractors are selected by the program through a public bidding process and assigned to individual buildings to install the measures, while DHHS/OH manages and pays the contractors. The Low-Income Program began to install common-area lighting measures in 1988. Competitive bidding among contractors was implemented for a limited number of projects during 1995 in an effort to reduce costs. Competitive bidding coordinated through the Seattle Board of Public Works was required for all DHHS/OH multifamily projects in 1996-2001. A separate bidding process was held for lighting retrofit measures. In 2002 the bidding process was changed. Now low-income housing providers select and pay their own contractors directly, and are reimbursed later by OH after work is complete and OH inspections have been conducted.

Standard-Income Program: At the start of the program, building owners served by Seattle City Light's Standard-Income Multifamily Program with measures that include weatherization qualified for a 10-year, zero-interest loan, with five-year deferred payment and a 50% discount for first-year payoff. In 1996 the period on this loan was reduced to 6 years with the first year deferred. A 50% discount for payoff during the first year remained in effect for 1996-1997. In mid-1998 a program financing change was made to encourage "cash-outs" rather than use of the loan option. The option of cashing out the zero-interest loan in the first year and still receiving the 50% discount was eliminated. An early-action discount was offered if customers made the choice to participate within 30 days of contractor bid submittals. The $4.50 incentive amount for windows rose to $6.00 per square foot of glass if the project proceeded before this deadline. The early-action discount was been successful in expediting projects through the program. However, in 2002 the early-action discount were eliminated and the incentive per square of glass dropped to $5.00 including tax. City Light continues to pay for up to 70% of the installed cost for common-area lighting measures.

In the Standard-Income Program, private contractors, selected by the individual building owners or property managers, install the measures while Seattle City Light manages and pays the contractors. Starting in 1997, owners have been required to pay directly to window contractors any costs exceeding Seattle City Light's financing limit; before that time, excess costs were channeled through the Utility. In 1987 through 1996, the BPA continued to reimburse some weatherization costs for low-income buildings. In 1995-1997 participants in non-low-income buildings benefited from BPA funds.

MULTIFAMILY CONSERVATION PROGRAMS

Common-Area Lighting Program: Beginning in 1993, Seattle City Light began to offer financial and technical help for common-area lighting modifications in buildings not likely to receive whole-building measures. These include oil and gas heated buildings, condominiums of all heat sources, and buildings constructed after the double-glazing code went into effect in 1980. The Common-Area Lighting Program pays for up to 70% of the installed measure cost, and offers a 70% discount for up-front payment. No participants in this group opted to take the 10-year, zero-interest loan and the loan option was eliminated in 1996. During the final quarter of 2002 a pilot test was conducted utilizing a rebate format rather than the traditional contracting process. Due to the success of that pilot, the rebate format will be adopted for all Common-Area Lighting projects beginning in 2003.

Low-Income Utility Tax Program: In 2002, Seattle City Light applied a special utility tax "windfall" to installing energy efficient common-area lighting and space-heat thermostats in low-income affordable housing operated by the Seattle Housing Authority, King County Housing Authority, and several other private low-income housing providers.

Eligible Population

At the end of 1991, in the City Light service area there were 3,164 electrically-heated multifamily buildings built before 1980 that contain five or more units, for a total of 63,281 apartment and condominium units. In 25% of the buildings, at least two-thirds of the residents have incomes at or below 125% of the federal poverty level guidelines. From 1986 through 1998, the Low-Income Multifamily Program required at least two-thirds of the residents to have incomes at or below 125% of the federal poverty level guidelines. In 1999 the definition was modified to half of residents at or below the poverty line.

The eligible population for the Multifamily Conservation Programs in 1991 thus included about 2,373 standard-income buildings (47,461 units) and 791 low-income buildings (15,820 units). Seattle City Light's goal has been to serve 29,426 standard-income units, or 62% of the 1991 market pool, with weatherization measures.

In addition, there are about 2,632 buildings (52,646 units) that were built since 1980, are condominiums, or have nonelectric (gas or oil) space heat. The pool for common-area lighting measures has grown since 1991 with increasing new-construction activity. (1)

MULTIFAMILY CONSERVATION PROGRAMS

Lifetime of Conservation Measures Installed

The lifetime of measures ranges from 16 years for common-area lighting to 30 years for dwelling-area measures; the weighted average lifetime is 25 years in the standard-income and low-income whole-building programs.

Electricity Savings

This section contains two tables. The first depicts projects contracted by City Light during the calendar year. This table shows the potential energy savings that will be realized when the projects are completed. Multifamily retrofit projects contracted in one year may not be completed until the next. The second table presents savings realized from projects completed during the calendar year.

Note that the energy savings (both MWh and aMW) reported in both tables reflect savings from current year participants as well as savings in that year from all prior participants for whom the measure lifetime has not yet expired. For a description of first-year savings from current year participants only, see the referenced footnotes. The line titled "electricity savings since start of program" sums savings across all the years from program inception through the current reporting year. This illustrative construct exceeds the actual savings experienced in any given calendar year.

The average building currently receiving whole-building conservation measures from the Standard-Income Multifamily Programs saves about 1,768 kilowatt-hours (kWh) per residential unit annually. Of this amount, about 64% is saved by building tenants (the remainder, saved on common-area meters, benefits building owners). These tenant savings represent 14% of the typical electrically-heated multifamily unit's energy use (8,347 kWh in 1990; 8,112 kWh in 2000).

The average building currently receiving whole-building conservation measures from the Low-Income Multifamily Programs saves about 1,215 kWh per residential unit annually. Of this amount, about 66% is saved by building tenants (the remainder, saved on common-area meters, benefits building owners). These tenant savings represent 10% of the typical electrically-heated multifamily unit's energy use (8,347 kWh in 1990; 8,112 kWh in 2000). Net savings are lower in low-income than standard-income buildings due mainly to energy use reductions in the remaining market pool of unserved buildings.

The average building receiving only common-area lighting measures from the Multifamily Common-Area Lighting Program saves about 700 kWh per residential unit annually. These

MULTIFAMILY CONSERVATION PROGRAMS

common-area savings, benefiting building owners, represent nine percent (9%) of the typical multifamily unit's energy use, regardless of heat source (7,769 kWh in 1990; 7,835 kWh in 2000).

The average building receiving common-area lighting measures from the Low-Income Utility Tax Program saves about 250 kWh per residential unit annually, while the average residential unit receiving a thermostat retrofit through this program saves about 200 kWh per unit. First year savings from projects contracted in 2002 by the *MFCP* were 6,229 megawatt-hours (MWh). About half (55%) of these projects were completed by year end. When projects contracted in 2002 are completed, they will bring the *MFCP* load reduction to 8.447 average megawatts. By program, these contracted first-year savings are: 2,235 MWh from new Standard-Income projects, 752 MWh from Low-Income projects, 1,136 MWh from Common-Area Lighting projects, and 2,106 MWh from Utility Tax projects.

First year energy savings from projects completed in 2002 by the *MFCP* totaled 6,892 MWh. By program, these were: 2,454 MWh from completed Standard-Income projects, 752 MWh from Low-Income projects, and 1,580 from Common-Area Lighting projects, and 2,106 MWh from Utility Tax projects.

In 2002 the energy savings from cumulative (1986-2002) *MFCP* completed projects were 72,861 megawatt-hours (MWh). The load reduction in 2002 due to this program was 8.317 average megawatts (aMW).

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Contracted Projects —

Year	*Contracted Buildings by Year* (2)	*Contracted Units by Year*	*Cumulative Units* (2)	*kWh First Year Savings per Unit* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Standard-Income Multifamily Program:						
1986	25	285	285	1,213	346	0.039
1987	39	761	1,046	1,628	1,585	0.181
1988	52	932	1,978	1,322	2,817	0.322
1989	62	972	2,950	1,534	4,308	0.492
1990	66	1,022	3,972	1,937	6,287	0.718
1991	57	1,095	5,067	1,696	8,144	0.930
1992	53	1,014	6,081	1,433	9,598	1.096
1993	131	2,022	8,103	1,840	13,318	1.520
1994	115	2,000	10,103	1,738	16,794	1.917
1995	109	2,111	12,214	1,771	20,533	2.344
1996	67	1,223	13,437	1,678	22,585	2.578
1997	76	1,314	14,751	1,725	24,851	2.837
1998	70	1,387	16,138	1,811	27,363	3.124
1999	71	1,372	17,510	1,768	29,789	3.401
2000	62	1,036	18,546	1,768	31,621	3.610
2001	81	1,173	19,619	1,768	33,518	3.826
2002	77	1,264	20,883	1,768	35,752	4.081
Low-Income Multifamily Program:						
1986	23	264	264	1,025	271	0.031
1987	62	929	1,193	1,089	1,282	0.146
1988	57	894	2,087	1,638	2,747	0.314
1989	60	891	2,978	1,015	3,651	0.417
1990	62	832	3,810	1,219	4,665	0.533
1991	46	790	4,600	1,038	5,485	0.626
1992	65	1,021	5,621	1,265	6,777	0.774
1993	43	847	6,468	1,237	7,824	0.893
1994	55	1,278	7,746	1,312	9,501	1.085
1995	43	1,033	8,779	1,298	10,842	1.238
1996	28	469	9,248	1,164	11,388	1.300
1997	16	725	9,973	1,231	12,280	1.402
1998	12	626	10,599	984	12,896	1.472
1999	17	830	11,429	994	13,721	1.566
2000	7	708	12,137	1,215	14,581	1.665
2001	10	389	12,526	1,215	15,054	1.718
2002	8	619	13,145	1,215	15,806	1.804
Low-Income Utility-Tax Program:						
2002	126	7,092	7,092	297	2,106	0.240

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Contracted Projects —

(Continued)

Year	*Contracted Buildings by Year* (2)	*Contracted Units by Year*	*Cumulative Units* (2)	*kWh First Year Savings per Unit* (3)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Common-Area Lighting Program:						
1993	54	2,106	2,106	855	1,801	0.206
1994	148	3,790	5,896	700	4,454	0.508
1995	187	4,127	10,023	700	7,343	0.838
1996	186	4,272	14,295	700	10,333	1.180
1997	129	4,289	18,584	700	13,335	1.522
1998	115	2,408	20,992	804	15,271	1.743
1999	72	2,333	23,325	700	16,904	1.930
2000	48	1,337	24,662	700	17,840	2.037
2001	80	1,937	26,599	700	19,196	2.191
2002	31	1,623	28,222	700	20,332	2.321
Programs Total:						
1986	48	549	549	1,123	616	0.070
1987	101	1,690	2,239	1,332	2,867	0.327
1988	109	1,826	4,065	1,477	5,563	0.635
1989	122	1,863	5,928	1,286	7,959	0.909
1990	128	1,854	7,782	1,615	10,953	1.250
1991	103	1,885	9,667	1,420	13,630	1.556
1992	118	2,035	11,702	1,349	16,374	1.869
1993	228	4,975	16,677	1,338	22,943	2.619
1994	318	7,068	23,745	1,104	30,749	3.510
1995	339	7,271	31,016	1,096	38,717	4.420
1996	281	5,964	36,980	937	44,305	5.058
1997	221	6,328	43,308	974	50,467	5.761
1998	197	4,421	47,729	1,131	55,531	6.339
1999	160	4,535	52,264	1,117	60,441	6.897
2000	117	3,081	55,345	1,177	64,042	7.311
2001	171	3,399	58,744	1,096	67,768	7.736
2002	242	10,598	69,342	588	73,997	8.447
Potential Electricity Savings Since Start of Program:					**566,895**	**MWh**

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
—Completed Projects —

Year	*Completed Buildings by Year* (4)	*Completed Units by Year*	*Cumulative Units* (4)	*kWh First Year Savings per Unit* (5)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
Standard-Income Multifamily Program:						
1986	24	257	257	1,213	312	0.036
1987	25	399	656	1,628	961	0.110
1988	54	1,122	1,778	1,322	2,445	0.279
1989	32	462	2,240	1,534	3,153	0.360
1990	73	1,020	3,260	1,937	5,129	0.586
1991	66	1,246	4,506	1,696	7,242	0.827
1992	58	1,204	5,710	1,433	8,968	1.024
1993	66	942	6,652	1,840	10,701	1.222
1994	118	1,996	8,648	1,738	14,170	1.618
1995	150	2,664	11,312	1,771	18,888	2.156
1996	62	1,210	12,522	1,678	20,918	2.388
1997	71	1,541	14,063	1,725	23,576	2.691
1998	67	968	15,031	1,811	25,330	2.891
1999	72	1,508	16,539	1,768	27,996	3.196
2000	80	1,238	17,777	1,768	30,184	3.446
2001	83	1,393	19,170	1,768	32,647	3.727
2002	88	1,388	20,558	1,768	35,101	4.007
Low-Income Multifamily Program:						
1986	23	264	264	1,025	271	0.031
1987	62	929	1,193	1,089	1,282	0.146
1988	57	894	2,087	1,638	2,747	0.314
1989	60	891	2,978	1,015	3,651	0.417
1990	62	832	3,810	1,219	4,665	0.533
1991	46	790	4,600	1,038	5,485	0.626
1992	65	1,021	5,621	1,265	6,777	0.774
1993	43	847	6,468	1,237	7,824	0.893
1994	55	1,278	7,746	1,312	9,501	1.085
1995	43	1,033	8,779	1,298	10,842	1.238
1996	28	469	9,248	1,164	11,388	1.300
1997	16	725	9,973	1,231	12,280	1.402
1998	12	626	10,599	984	12,896	1.472
1999	17	830	11,429	994	13,721	1.566
2000	7	708	12,137	1,215	14,581	1.665
2001	10	389	12,526	1,215	15,054	1.718
2002	8	619	13,145	1,215	15,806	1.804
Low-Income Utility-Tax Program:						
2002	126	7,092	7,092	297	2,106	0.240

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

ELECTRICITY SAVINGS FOR THE MULTIFAMILY CONSERVATION PROGRAMS
—Completed Projects —

(Continued)

Year	Completed Buildings by Year (4)	Completed Units by Year	Cumulative Units (4)	kWh First Year Savings per Unit (5)	MWh Savings in Year	Avg. MW Load Reduction in Year
Common-Area Lighting Program:						
1993	32	684	684	439	300	0.034
1994	97	3,609	4,293	793	3,162	0.361
1995	196	4,300	8,593	700	6,172	0.705
1996	153	3,153	11,746	700	8,379	0.957
1997	153	3,956	15,702	700	11,149	1.273
1998	153	4,258	19,960	759	14,380	1.642
1999	51	1,830	21,790	700	15,561	1.788
2000	30	946	22,736	700	16,323	1.863
2001	112	2,778	25,514	700	18,267	2.085
2002	45	2,257	27,771	700	19,847	2.266
Programs Total:						
1986	47	521	521	1,118	582	0.066
1987	87	1,328	1,849	1,251	2,244	0.256
1988	111	2,016	3,865	1,462	5,191	0.593
1989	92	1,353	5,218	1,192	6,804	0.777
1990	135	1,852	7,070	1,614	9,794	1.118
1991	112	2,036	9,106	1,441	12,728	1.453
1992	123	2,225	11,331	1,356	15,744	1.797
1993	141	2,473	13,804	1,281	18,825	2.149
1994	270	6,883	20,687	1,163	26,833	3.063
1995	389	7,997	28,684	1,134	35,902	4.098
1996	243	4,832	33,516	990	40,685	4.644
1997	240	6,222	39,738	1,016	47,005	5.366
1998	232	5,852	45,590	946	52,605	6.005
1999	140	4,168	49,758	1,189	57,377	6.550
2000	117	2,892	52,650	1,283	61,089	6.974
2001	205	4,560	57,210	1,070	65,969	7.531
2002	267	11,356	68,566	607	72,861	8.317
Electricity Savings Since Start of Program:					**532,238**	**MWh**

Program Expenditures

The program expenditures from 1986 through 2002 for administration and measures installation totaled $63,051,852. Total expenditures in 2002 were $4,135,006. This represents the cost to the utility, and not the total resource cost. The Bonneville Power Administration provided $8,841,234 in total funding during thirteen of these years.

MULTIFAMILY CONSERVATION PROGRAMS

PROGRAM EXPENDITURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Completed Projects —

Year	*Seattle City Light Administration* (6)	*Office of Housing Administration* (7)	*Total Administration*	*Measure Installation* (8)	*Total Expenditures*
Standard-Income Multifamily Program:					
1986	$79,862	—	$79,862	$260,570	$340,432
1987	150,585	—	150,585	481,472	632,057
1988	198,754	—	198,754	1,080,922	1,279,676
1989	184,340	—	184,340	826,630	1,010,970
1990	171,939	—	171,939	1,216,866	1,388,805
1991	184,826	—	184,826	1,333,858	1,518,684
1992	259,417	—	259,417	1,152,808	1,412,225
1993	700,896	—	700,896	1,082,512	1,783,408
1994	589,742	—	589,742	2,875,003	3,464,745
1995	613,856	—	613,856	3,790,637	4,404,493
1996	402,467	—	402,467	1,667,871	2,070,337
1997	359,967	—	359,967	1,394,083	1,754,050
1998	366,971	—	366,971	1,253,789	1,620,760
1999	345,996	—	345,996	1,286,831	1,632,827
2000	376,319	—	376,319	791,214	1,167,533
2001	367,810	—	367,810	1,144,532	1,512,342
2002	356,965	—	356,965	1,031,242	1,388,206
Total	$5,710,712	—	$5,710,712	$22,670,840	$28,381,550
Low-Income Multifamily Program:					
1986	$13,339	$129,655	$142,994	$381,590	$524,584
1987	15,605	246,773	262,378	1,498,248	1,760,626
1988	11,092	325,540	336,632	1,447,048	1,783,680
1989	24,299	346,341	370,640	1,400,368	1,771,008
1990	19,269	293,553	312,822	1,363,621	1,676,443
1991	26,596	313,000	339,596	1,435,579	1,775,175
1992	20,798	337,949	358,747	1,522,625	1,881,372
1993	12,615	753,076	765,691	1,451,928	2,217,619
1994	8,396	780,792	789,188	1,932,391	2,721,579
1995	46,017	531,136	577,153	1,620,534	2,197,687
1996	20,389	269,448	289,837	752,781	1,042,618
1997	11,884	268,689	280,573	601,881	882,454
1998	12,414	267,966	280,380	724,983	1,005,363
1999	11,575	438,830	450,405	910,698	1,361,103
2000	2,012	448,682	450,694	1,082,209	1,532,903
2001	90,433	415,803	506,236	771,607	1,277,843
2002	603	470,016	470,618	905,472	1,376,090
Total	$347,336	$6,637,249	$6,984,584	$19,803,563	$26,788,147

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

PROGRAM EXPENDITURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
— Completed Projects —

(Continued)

Year	*Seattle City Light Administration* (6)	*Office of Housing Administration* (7)	*Total Administration*	*Measure Installation* (8)	*Total Expenditures*
Low-Income Utility-Tax Program:					
2002	$142,618	—	$142,618	$712,665	$855,283
Total	$142,618	—	$142,618	$712,665	$855,283
Common-Area Lighting Program:					
1993	$107,227	—	$107,227	$563,347	$670,574
1994	224,273	—	224,273	717,377	941,650
1995	212,510	—	212,510	835,831	1,048,341
1996	286,733	—	286,733	495,378	782,111
1997	310,183	—	310,183	579,398	889,581
1998	263,583	—	263,583	514,809	778,392
1999	267,867	—	267,867	252,011	519,878
2000	223,706	—	223,706	258,517	482,223
2001	188,848	—	188,848	209,848	398,696
2002	220,545	—	220,545	294,882	515,427
Total	$2,305,475	—	$2,305,475	$4,721,398	$7,026,873
Programs Total:					
1986	$93,201	$129,655	$222,856	$642,160	$865,016
1987	166,190	246,773	412,963	1,979,720	2,392,683
1988	209,846	325,540	535,386	2,527,970	3,063,356
1989	208,639	346,341	554,980	2,226,998	2,781,978
1990	191,208	293,553	484,761	2,580,487	3,065,248
1991	211,422	313,000	524,422	2,769,437	3,293,859
1992	280,215	337,949	618,164	2,675,433	3,293,597
1993	820,738	753,076	1,573,814	3,097,787	4,671,601
1994	822,411	780,792	1,603,203	5,524,771	7,127,974
1995	872,383	531,136	1,403,519	6,247,002	7,650,521
1996	709,589	269,448	979,037	2,916,029	3,895,066
1997	682,034	268,689	950,723	2,575,362	3,526,085
1998	642,968	267,966	910,934	2,493,581	3,404,515
1999	625,438	438,830	1,064,268	2,449,540	3,513,808
2000	602,037	448,682	1,050,719	2,131,940	3,182,659
2001	647,091	415,803	1,062,894	2,125,987	3,188,881
2002	720,730	470,016	1,190,746	2,944,261	4,135,006
Total	**$8,505,780**	**$6,637,249**	**$15,143,389**	**$47,908,465**	**$63,051,853**

MULTIFAMILY CONSERVATION PROGRAMS

FINANCIAL EFFICIENCY MEASURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
– Per Completed Unit – (9)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as % of Total Expenditures*
Standard-Income Multifamily Program:				
1986	$311	$1,014	$1,325	23.5%
1987	377	1,207	1,584	23.8
1988	177	963	1,141	15.5
1989	399	1,789	2,188	18.2
1990	169	1,193	1,362	12.4
1991	148	1,071	1,219	12.2
1992	215	957	1,173	18.4
1993	744	1,149	1,893	39.3
1994	295	1,440	1,736	17.0
1995	230	1,423	1,653	13.9
1996	333	1,378	1,711	19.4
1997	234	905	1,138	20.5
1998	379	1,295	1,674	22.6
1999	229	853	1,083	21.2
2000	304	639	943	32.2
2001	297	925	1,222	24.3
2002	256	740	997	25.7
Avg. 1986-2002	$273	$1,086	$1,359	20.1%
Low-Income Multifamily Program:				
1986	$542	$1,445	$1,987	27.3%
1987	282	1,613	1,895	14.9
1988	377	1,619	1,995	18.9
1989	416	1,572	1,988	20.9
1990	376	1,639	2,015	18.7
1991	430	1,817	2,247	19.1
1992	351	1,491	1,843	19.1
1993 (9)	904	1,714	2,618	34.5
1994	618	1,512	2,130	29.0
1995	559	1,569	2,127	26.3
1996	618	1,605	2,223	27.8
1997	387	830	1,217	31.8
1998	448	1,158	1,606	27.9
1999	543	1,097	1,640	33.1
2000	637	1,529	2,165	29.4
2001	1,301	1,984	3,285	39.6
2002	760	1,463	2,223	34.2
Avg. 1986-2002	$531	$1,507	$2,038	26.1%

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

FINANCIAL EFFICIENCY MEASURES FOR THE MULTIFAMILY CONSERVATION PROGRAMS
– Per Completed Unit – (9)

(Continued)

Year	*Average Total Administration*	*Average Installation*	*Average Total Expenditure*	*Admin. as % of Total Expenditures*
Low-Income Utility Tax Program:				
2002	$20	$100	$121	16.7%
Common-Area Lighting Program:				
1993	$157	$824	$980	16.0%
1994	62	199	261	23.8
1995	49	194	244	20.3
1996	91	157	248	36.7
1997	78	146	225	34.9
1998	62	121	183	33.9
1999	146	138	284	51.5
2000	236	273	510	46.4
2001	68	76	144	47.4
2002	98	131	228	42.8
Avg. 1993-2002	$82	$167	$249	32.8%
Programs Total:				
1986	$428	$1,233	$1,660	25.8%
1987	311	1,491	1,802	17.3
1988	266	1,254	1,520	17.5
1989	410	1,646	2,056	19.9
1990	262	1,393	1,655	15.8
1991	258	1,360	1,618	15.9
1992	278	1,202	1,480	18.8
1993	636	1,253	1,889	33.7
1994	233	803	1,036	22.5
1995	176	781	957	18.3
1996	203	603	806	25.1
1997	153	414	567	27.0
1998	156	426	582	26.8
1999	255	588	843	30.3
2000	363	737	1,101	33.0
2001	368	735	1,103	33.3
2002	261	646	907	28.8
Avg. 1986-2002	**$243**	**$770**	**$1,013**	**24.0%**

MULTIFAMILY CONSERVATION PROGRAMS

BPA FUNDING FOR THE MULTIFAMILY CONSERVATION PROGRAMS (10)

Year	*Administration*	*Weatherization*	*Total Funding*
Standard-Income Multifamily Program:			
1986	$12,040	$136,868	$148,908
1987	0	0	0
1988	0	0	0
1989	24,317	0	24,317
1990	16,416	0	16,416
1991	49,559	0	49,559
1992	48,242	0	48,242
1993	0	0	0
1994	0	0	0
1995	220,080	1,532,242	1,752,322
1996	0	661,055	661,055
1997	0	491,374	491,375
1998	0	35,451	35,451
1999-2002	0	0	0
Total	$370,654	$2,856,990	$3,227,645
Low-Income Multifamily Program:			
1986	$5,095	$54,796	$59,891
1987	5,745	45,789	51,534
1988	6,280	51,512	57,792
1989	58,672	258,307	316,979
1990	67,734	242,701	310,435
1991	68,955	351,665	420,620
1992	81,309	405,178	486,487
1993	107,272	619,741	727,013
1994	10,285	1,460,455	1,470,740
1995	13,547	298,492	312,039
1996	0	168,822	168,822
1997-2002	0	0	0
Total	$424,894	$3,957,458	$4,382,352
Common-Area Lighting Program:			
1993	$0	$0	$0
1994	0	0	0
1995	91,600	529,497	621,097
1996	0	269,221	269,221
1997	0	340,918	340,918
1998-2002	0	0	0
Total	$91,600	$1,139,636	$1,231,236

(Cont'd.)

MULTIFAMILY CONSERVATION PROGRAMS

BPA FUNDING FOR THE MULTIFAMILY CONSERVATION PROGRAMS (10)

(Continued)

Year	*Administration*	*Weatherization*	*Total Funding*
Programs Total:			
1986	$17,135	$191,664	$208,799
1987	5,745	45,789	51,534
1988	6,280	51,512	57,792
1989	82,989	258,307	341,296
1990	84,150	242,701	326,851
1991	118,514	351,665	470,179
1992	129,551	405,178	534,729
1993	107,272	619,741	727,013
1994	10,285	1,460,455	1,470,740
1995	325,227	2,360,231	2,685,458
1996	0	1,099,099	1,099,099
1997	0	832,293	832,293
1998	0	35,451	35,451
1999-2002	0	0	0
Total	**$887,148**	**$7,954,085**	**$8,841,234**

Notes

1. Eligible population figures are from City Light's 1992 load forecast. Of the 47,461 units in the standard-income market pool for whole-building measures, 34,805 are located in apartment buildings and 12,656 are in multi-unit condominiums. Of the 52,646 units in the market pool for common-area lighting measures only, 32,091 are located in electric-space heat buildings constructed since 1980 and 20,555 are in older buildings and multi-use condominiums.

2. These figures include the number of buildings where weatherization work was contracted during the year. The source was Multifamily Conservation Program records, EMSD Contracts Unit. The program contracted to serve a total of 69,342 residential units during 1986 through 2002.

3. The whole-building energy savings by year (MWh) totals reflect savings for the current year participants plus savings accrued by prior participants within each category of building type. Energy savings estimates are derived from a recently published study, *Multifamily Retrofit Conservation Programs: Longitudinal Impact Evaluation* (April 1999). Following are the annual total kWh per-unit savings estimates used.

MULTIFAMILY CONSERVATION PROGRAMS

Year	Tenant Meter Savings kWh per Unit		House-Meter Savings kWh per Unit		Total Building Impact kWh per Unit	
	Std-Inc	Low-Inc	Std-Inc	Low-Inc	Std-Inc	Low-Inc
1986	989	1,711	195	136	1,213	1,025
1987	1,186	1,465	416	379	1,628	1,089
1988	837	1,335	485	303	1,322	1,638
1989	1,082	628	452	387	1,534	1,015
1990	1,356	829	581	390	1,937	1,219
1991	1,338	898	358	140	1,696	1,038
1992	1,249	896	184	369	1,433	1,265
1993	1,291	991	550	347	1,840	1,338
1994	1,265	965	474	347	1,738	1,312
1995	1,251	951	520	347	1,771	1,298
1996	1,117	817	561	347	1,678	1,164
1997	1,160	860	565	371	1,725	1,231
1998	1,153	853	658	432	1,811	1,285
1999-2002	1,153	853	615	362	1,768	1,215

Energy savings from tenant spaces appear to be lower from applications in low-income buildings than in standard-income buildings. This basically reflects on inherent heat-loss characteristics of typical building structures in the two programs, and the mix of measures installed in the average retrofit job. Regarding windows, average heat-loss coefficients of replacement measures have shifted from U=0.72 in 1986-1989 to U=0.58 in 1990, U=0.46 in 1991, U=0.40 in 1992, and most currently U=0.35 in 1999. Overall, energy savings have not increased commensurately, due in part to declines in application of insulation materials. Some low-income units received only lighting measures (105 units in 1993), or no lighting measures (490 units in 1998, 582 units in 1999), so were estimated separately.

Energy savings for participants receiving only common-area lighting measures are based upon estimates made by Community Conservation staff using pre- and post-wattage and engineering algorithms. These projections were then reduced by 38%, based on the findings of a pilot evaluation which showed that actual savings were somewhat lower than projections in a sample of eleven buildings (Evaluation of Multifamily Conservation Lighting in the Energy Smart Design Program, February 1993). One building contracted in 1993 and another in 1998 were projected to produce unusually high savings per unit, and so were estimated separately. The estimates reported here will be revised in a future edition of the *Energy Conservation Accomplishments Report*, when an future evaluation of common-area lighting savings has been completed.

4. These figures include the number of buildings where weatherization work was completed (and contractors paid) during the year. The source was Multifamily Conservation Program records, EMSD Community Conservation Section and Contracts Unit. The program served a total of 68,566 units completed during 1986 through 2002. The average number of units per building during these sixteen years was 21 for low-income whole-building participants, 17 for standard-income whole-building participants, 27 for common-area lighting-only participants, and 56 for utility-tax participant.

From 1986 through 2002, the Low-Income Program has served 2,959 units of public housing in 49 buildings averaging 60 units in size. By year, these included the following King County Housing Authority (1988) and Seattle Housing Authority (1986-2002) buildings.

MULTIFAMILY CONSERVATION PROGRAMS

	Public Housing Authority	
Year	Buildings	Units
1986	12	94
1987	0	0
1988	2	140
1989	0	0
1990	2	132
1991	8	41
1992	4	234
1993	2	125
1994	3	220
1995	6	608
1996	1	153
1997	2	148
1998	2	246
1999	2	134
2000	2	578
2001	1	106

During 1999 the Common-Area Lighting program also served 834 units of public housing in 18 buildings operated by the Seattle Housing Authority, averaging 46 units in size.

During 2002 the Low-Income Utility Tax program served 2,096 units of public housing in 41 buildings operated by the Seattle Housing Authority and King County Housing Authority, as well as 4,996 units in 85 buildings operated by private non-profit low-income housing providers.

5. Energy savings were calculated for completed buildings as described above in Note 3.

First year energy savings from new participants completing work in each year were: 582 MWh (1986); 1,661 MWh (1987); 2,948 MWh (1988); 1,613 MWh (1989); 2,990 MWh (1990); 2,933 MWh (1991); 3,017 MWh (1992); 3,081 MWh (1993); 8,008 MWh (1994); 9,069 MWh (1995); 4,783 MWh (1996); 6,320 MWh (1997); 5,600 MWh (1998); 4,772 MWh (1999); 3,711 MWh (2000); 4,880 MWh (2001); and 6,892 MWh (2002).

6. Program expenditures for City Light EMSD administration include the following: salaries, wages, and labor-related costs for field staff and administrative support; materials and supplies, office supplies, printing; paid media space; travel, postage, publications; data processing; and contract unit services.

Labor costs associated with program audits and inspections are included. The source of these data from 1986 through 1990 is Cost Ledger Reports from the City Light Finance Division for Work Order Nos. 70595, and 70522. These figures do not reflect BPA funding. Cost data for 1991 through 2002 are from the Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70501, 70511, 70522, 70534, 70544, 70592, 70593, and 70595.

Administrative costs for 1993-2002 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1993 the A&G overhead charge for the *MFCP* was $267,982, or 33% of total Seattle City Light programmatic administrative expenditures; in 1994 it was $264,825 (32%); in 1995 is was $265,727 (30%).

MULTIFAMILY CONSERVATION PROGRAMS

By program component, the A&G charges in 1994 were: Standard-Income Program, $188,022 (32%); Low-Income Program, $3,031 (36% of Seattle City Light administration); and Common-Area Lighting Program, $73,772 (33%). In 1995 the A&G charges were: Standard-Income Program, $186,054 (30%); Low-Income Program, $7,249 (16% of Seattle City Light administration); and Common-Area Lighting Program, $72,423 (34%). The size of this percentage reflects the proportion of administrative costs that are labor intensive.

7. These administrative direct cost data came from DHHS monthly invoices for labor, installation costs, and other program expenses. The indirect administration charges from 1986-1992 were subtracted from the total to more closely match reported City Light costs (OMB recommendation, May 1988). Beginning in 1993, the indirect charges are once again reported in this table, based on changes in Seattle City Light accounting for A&G service overhead charges in other programs. This change more closely matches low-income *MFCP* costs with those of buildings in the standard-income *MFCP*.

   The indirect charges were $47,460 in 1986; $132,595 in 1987; $125,734 in 1988; $108,296 in 1989; $130,254 in 1990; $213,433 in 1991; $119,754 in 1992; $118,514 in 1993; $124,278 in 1994; $152,658 in 1995; $66,748 in 1996; $63,519 in 1997; $63,480 in 1998; $74,303 in 1999; $76,909 in 2000; and $0 in 2001-2002. For a more detailed explanation of DHHS/OH cost accounting, see Note 5 to the *LIEP* entry in this Report.

8. Program expenditures for loans and grants from 1986 to 1990 were compiled from year-end Cost Ledger Reports from the City Light Finance Division for Work Order No. 70595-05 (Budget Item 36). Cost data for 1991 and 1992 are from the SFMS and from records of the EMSD Community Conservation Section (April 1994), as well as from the Contracts Unit (June 1994). Cost data for 1993-1996 are from the Contracts Unit. These figures reflect the total cost of measure installation (including costs incurred by the customer in excess of program allowances).

   In 1986-1997, since the customer paid these excess monies to the utility, which then paid all contractor invoices in full, actual customer loans were often lower. In 1998-2002, customers paid excess monies directly to the contractor. Presented below are the annual excess payments in nominal dollars made by customers in each year as contracted from 1986 through 2002 for the Standard-Income program and 1993-2002 for the Common-Area Lighting program.

   Excess dollars paid by customers to contractors, reported here by project authorization year, are documented in program tracking databases: MFP_History (Rbase/Access 1997-1999), CAL_History (Rbase/Access 1996-1999), and CTS/EMTS (Oracle 2000-2002).

MULTIFAMILY CONSERVATION PROGRAMS

	Standard Income Program	
Year	Annual Excess Pmts	Cumulative Excess Pmts
1986	$ 20,121	$ 20,121
1987	31,486	51,608
1988	161,143	212,751
1989	161,177	373,928
1990	134,179	508,107
1991	174,806	682,913
1992	119,784	802,697
1993	313,655	1,116,352
1994	299,006	1,415,358
1995	251,938	1,667,296
1996	272,143	1,939,439
1997	388,824	2,328,263
1998	882,554	3,210,817
1999	890,114	4,100,931
2000	871,241	4,972,172
2001	1,233,351	6,205,523
2002	1,479,841	7,685,364

	Common-Area Lighting Program	
Year	Annual Excess Pmts	Cumulative Excess Pmts
1993	$ 11,191	$ 11,191
1994	19,006	30,197
1995	9,789	39,986
1996	272,695	312,681
1997	156,418	469,099
1998	203,869	672,968
1999	112,196	785,164
2000	95,659	880,823
2001	78,834	959,657
2002	99,108	1,058,765

9. Note that administrative costs generally would vary with projects contracted (since most labor occurs up to this stage), while measure costs would vary with completions (when payment for measures occurs); but this table indexes both types of costs to completions. Thus the 1993 financial efficiency measures are affected by the ramp-up in project starts.

   In 1993 two buildings (38 units) retrofitted special wood windows required for historic preservation purposes. Changes in NFRC requirements also drove costs up and the financial efficiency index down for measures.

   There is a discontinuity in this table due to the inclusion in 1993 and following years of indirect administrative costs that were formerly excluded (see Note 7).

10. These data are based on City Light invoices submitted to and paid by BPA. City Light participated in the regional Energy Buy Back Program from 1986-1991, and began to participate in the BPA Weatherwise program in October 1991. No administrative charges were made to the BPA for radon monitoring, water-heater tank wraps, or training.

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

Description

The Warm Home Program (*Warm Home*) replaced the Home Energy Loan Program in 1994 (see SECTION IV: DISCONTINUED RESIDENTIAL PROGRAMS). *Warm Home* provided grants and loans to electrically heated households for weatherization. The program also worked with landlords to serve rental as well as owner-occupied homes. Insulation was installed only if the existing insulation was below threshold levels: attics, R-11; floors above crawl space or garage, R-9; heating ducts, R-3. In walls, full insulation was mandatory where structurally feasible if there was no existing insulation; water pipe insulation was mandatory as well, where crawl spaces were insulated. Insulation was provided at no cost to the customer in 1994-1996.

If no insulation was needed, during 1994-1995 the *Warm Home* customer was still eligible for efficient window measures. The customer received a grant from City Light of $3 per square foot on insulated windows (reimbursed by the BPA). The balance could be paid in cash or taken out in a loan from City Light, limited to $12 per square foot; the customer paid any amount over $15/square foot directly to the contractor. The loan may be paid back over a five-year period at the prevailing interest rate.

Warm Home was partially funded by the Bonneville Power Administration (BPA) through its regional Weatherwise program. Funding provided by the BPA via the Third Party Financing Agreement began in June 1994 and was discontinued at the end of 1996. The BPA funded each project at the calculated measure cost, including a program administration allowance, up to a maximum of $900 per residential unit.

In 1994 participating private contractors marketed the program to individual homeowners through Seattle City Light's service area, then installed the measures. Seattle City Light managed and paid the contractors. *Warm Home* was redesigned in 1996 to operate without funding support from the BPA. Window replacements were no longer offered, and owners became responsible for about 30% of insulation costs. Pre-existing insulation levels were also tightened up to increase program cost-effectiveness, being installed only if the existing insulation was below threshold levels of R-8 for attics and R-3 for floors above crawl spaces. Floors above unheated garages were no longer eligible for free insulation beginning in 1996.

Program marketing efforts were targeted to specific Seattle neighborhoods only in 1996-1998. Prior to bidding by weatherization contractors, City Light staff provided comprehensive multi-

NEIGHBORHOOD POWER PROGRAMS:
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resource conservation "green audits" to all applicants; in 1996 half of these went on to receive weatherization measures. In 1997-2002 the "green audit" service continued to be offered to non-participants in the weatherization program. *Warm Home* was replaced by *Neighborhood Power Weatherization (NPW)* in July 1997, with small-scale efforts through successive Power Projects in the neighborhoods of Fremont (the 1995 pilot), Georgetown / South Beacon Hill (1996-1997), Lake City (1998), Southeast Seattle / Rainier Beach (1999), West Seattle / Delridge / White Center (2000), the Central Area east of downtown (2001), and most recently the Greenwood / Phinney neighborhood (2002). In 1997-2000, *NPW* efforts also include a "Porchlight Brigade" in served neighborhoods, which supplied compact fluorescent (CF) light bulbs to volunteers for distribution to their neighbors.

In 2001 the neighborhood programs were supplemented by a special one-time postal distribution of Conservation Kits, which contained two CF light-bulbs and an efficient-flow bathroom faucet aerator. This distribution was mounted in cooperation with Seattle Public Utilities. After a solicitation of customer interest, Kits were delivered to 178,500 households in the City Light service area (57% of customers participated). CF bulbs were also delivered through Block Watch captains during annual "Night Out" neighborhood events, at a Mariner's baseball game, and to government and non-profit low-income housing providers. In all during the year, 218,281 participating customers installed 338,337 CF bulbs distributed by Seattle City Light.

Eligible Population

The *Neighborhood Power* programs serve single-family and multiplex (2- to 4-unit) electrically heated buildings. Although there is no income eligibility requirement, the program tends to serve residents of moderately low income. To receive weatherization measures, the home heat source must be 100% electric, installed prior to 1988, with no operable secondary heat source. During 1994-1995, some low-income customers also participated in *Warm Home* to receive financial assistance for wall insulation and insulated window glass. Beginning in 1997, only buildings located in specific areas of Seattle targeted by the Neighborhood Power Project are eligible for green audit and weatherization services. The one-time 2001 CF bulb offer was available to all residential customers in the utility service area.

Lifetime of Conservation Measures Installed:

The lifetime of measures ranges from 5 years for Green Audit/Porchlight Brigade compact fluorescent (CF) light-bulbs, 7 years for bulbs distributed in the 2001 Conservation Kit, and 10 years for other green-audit measures (water heater thermostat setbacks, efficient

**NEIGHBORHOOD POWER PROGRAMS:
LIGHTING, WEATHERIZATION & WARM HOME**

showerheads, efficient faucet aerators, plus CFL screw-in lamps), to 30 years for weatherization measures. The weighted average lifetime has ranged from 30 years (1994-1995) to 6 years (2002). (1)

Electricity Savings

The average single-family building receiving a weatherization grant and financing from *Warm Home* in 1994-1995 saved about 2,664 kilowatt-hours per year. These savings represent 14% of the typical electrically heated single-family home's energy use (19,580 kWh in 1990). Beginning in 1996, weatherization savings were reduced to 1,839 kWh per year based on the discontinuation of window retrofits. These savings represent 10% of the typical home's energy use (18,363 kWh in 2000). In 1996 only, single-family participants also received water heater setbacks saving an additional 605 kWh per average unit.

Multiplex buildings in the 1994-1995 program save 2,044 kWh per unit annually. These savings represent 16% of the typical electrically heated multiplex unit's energy use (a weighted average across units of 12,493 kWh in 1990). Beginning in 1996, savings were reduced to 1,353 kWh per year based on the discontinuation of window retrofits. These savings represent 11% of the typical home's energy use (12,374 kWh in 2000). In 1996 only, multiplex participants also received water heater setbacks saving an additional 481 kWh per average unit.

In 1996 through 2002, *Neighborhood Power* programs also provided "green audits" to customers who did not receive weatherization measures. The typical green audit participant saved 915 kWh per unit (in 1996-1998) from a screw-in compact fluorescent light (CFL) bulb plus water-related measures including efficient-flow showerheads, kitchen and bath faucet aerators, and a water heater thermostat set-back. When Porchlight Brigade and Block Watch activities were added to the non-weatherization program in 1999-2000, average savings rose to 1,375 kWh. Those activities have been removed to the new "CFLs & Kits" category, and with fewer water heater setbacks and showerhead measures being installed, the average green audit savings in 2002 are estimated at 190 kWh per unit. CFLs are estimated to save 54.5 kWh per bulb annually.

In 2002 the energy savings from cumulative (1994-2002) *Neighborhood Power* completed projects were 28,250 megawatt-hours (MWh). The load reduction in 2002 due to these programs was 3.225 average megawatts (aMW).

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

ELECTRICITY SAVINGS FOR THE LIGHTING, WEATHERIZATION, & WARM HOME PROGRAMS — Contracted Projects —

Year	*Building Type* (2)	*Buildings by Year* (3)	*Units by Year*	*kWh Savings per Bldg* (4)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1994	Single Family	526	526	2,664	1,401	0.160
	Multiplex	73	193	5,404	394	0.045
	Annual Total	599	719	—	1,796	0.205
1995	Single Family	838	838	2,664	3,634	0.415
	Multiplex	125	340	5,560	1,089	0.124
	Annual Total	963	1,178	—	4,723	0.539
1996	Single Family	171	171	2,444	4,052	0.463
	Multiplex	23	59	4,704	1,198	0.137
	Green Audits	175	228	1,193	209	0.024
	Annual Total	369	458	—	5,458	0.623
1997	Single Family	32	32	1,839	4,111	0.469
	Multiplex	11	32	3,936	1,241	0.142
	Green Audits	107	128	935	309	0.035
	Annual Total	150	192	—	5,660	0.646
1998	Single Family	10	10	1,839	4,129	0.471
	Multiplex	0	0	0	1,241	0.142
	Green Audits	143	148	1,061	461	0.053
	Annual Total	153	158	—	5,830	0.666
1999	Single Family	12	12	1,839	4,151	0.474
	Multiplex	1	2	2,706	1,244	0.142
	Green Audits	138	138	1,434	658	0.075
	Annual Total	151	152	—	6,053	0.691

(Cont'd.)

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

ELECTRICITY SAVINGS FOR THE LIGHTING, WEATHERIZATION, & WARM HOME PROGRAMS — Contracted Projects —

(Continued)

Year	*Building Type* (2)	*Buildings by Year* (3)	*Units by Year*	*kWh Savings per Bldg* (4)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
2000	Single Family	20	20	1,839	4,188	0.478
	Multiplex	1	4	5,412	1,249	0.143
	Green Audits	152	152	1,327	860	0.098
	Annual Total	173	176	—	6,297	0.719
2001	Single Family	16	16	1,839	4,217	0.481
	Multiplex	0	0	0	1,249	0.143
	Green Audits	104	104	189	880	0.100
	CFLs & Kits	218,281	338,337	55	21,824	2.491
	Annual Total	218,401	338,457	—	28,170	3.216
2002	Single Family	3	3	1,839	4,223	0.482
	Multiplex	1	4	5,412	1,254	0.143
	Green Audits	14	14	540	887	0.101
	CFLs & Kits	7,004	7,004	83	22,402	2.557
	Annual Total	7,022	7,025	—	28,766	3.284
Program Totals 1994-2002:						
	Single Family	1,628	1,628	—	34,106	—
	Multiplex	235	634	—	10,159	—
	Green Audits	833	912	—	4,264	—
	CFLs & Kits	225,285	345,341	—	44,226	—
	All Buildings	227,981	348,515	—	92,753	—
Potential Electricity Savings Since Start of Program:					**92,754**	**MWh**

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

ELECTRICITY SAVINGS FOR THE NEIGHBORHOOD POWER LIGHTING, WEATHERIZATION & WARM HOME PROGRAMS — Completed Projects —

Year	*Building Type* (2)	*Buildings by Year* (3)	*Units by Year*	*kWh Savings per Bldg* (4)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
1994	Single Family	210	210	2,664	559	0.064
	Multiplex	39	102	5,346	208	0.024
	Annual Total	249	312	—	768	0.088
1995	Single Family	767	767	2,664	2,603	0.297
	Multiplex	86	231	5,490	681	0.078
	Annual Total	853	998	—	3,283	0.375
1996	Single Family	457	457	2,065	3,547	0.405
	Multiplex	86	232	3,980	1,023	0.117
	Green Audits	175	228	1,193	209	0.024
	Annual Total	718	917	—	4,778	0.545
1997	Single Family	105	105	1,839	3,740	0.427
	Multiplex	20	56	3,788	1,099	0.125
	Green Audits	107	128	935	309	0.035
	Annual Total	232	289	—	5,147	0.588
1998	Single Family	6	6	1,839	3,751	0.428
	Multiplex	0	0	0	1,099	0.125
	Green Audits	143	148	1,061	461	0.053
	Annual Total	149	154	—	5,310	0.606
1999	Single Family	14	14	1,839	3,777	0.431
	Multiplex	1	2	2,706	1,101	0.126
	Green Audits	138	138	1,434	658	0.075
	Annual Total	153	154	—	5,536	0.632

(Cont'd.)

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

ELECTRICITY SAVINGS FOR THE NEIGHBORHOOD POWER LIGHTING, WEATHERIZATION, & WARM HOME PROGRAMS — Completed Projects —

(Continued)

Year	*Building Type* (2)	*Buildings by Year* (3)	*Units by Year*	*kWh Savings per Bldg* (4)	*MWh Savings in Year*	*Avg. MW Load Reduction in Year*
2000	Single Family	11	11	1,839	3,797	0.433
	Multiplex	0	0	0	1,101	0.126
	Green Audits	152	152	1,327	860	0.098
	Annual Total	163	163	—	5,758	0.657
2001	Single Family	23	23	1,839	3,839	0.438
	Multiplex	1	4	5,412	1,107	0.126
	Green Audits	104	104	189	880	0.100
	CFLs & Kits	218,281	338,337	54	21,824	2.491
	Annual Total	218,409	338,468	—	27,650	3.156
2002	Single Family	5	5	1,839	3,848	0.439
	Multiplex	1	4	5,412	1,112	0.127
	Green Audits	14	14	540	887	0.101
	CFLs & Kits	7,004	7,004	83	22,402	2.557
	Annual Total	7,024	7,027	—	28,250	3.225
Program Totals 1994-2002:						
	Single Family	1,598	1,598	—	29,461	—
	Multiplex	234	631	—	8,531	—
	Green Audits	833	912	—	4,264	—
	CFLs & Kits	225,285	345,341	—	44,226	
	All Buildings	227,950	348,482	—	86,481	—
Electricity Savings Since Start of Program:					**86,481**	**MWh**

NEIGHBORHOOD POWER PROGRAMS:
LIGHTING, WEATHERIZATION & WARM HOME

Program Expenditures

Total program expenditures in 1994-2002 for administration and measures installation were $11,883,742. In 2001, expenditures for the special distribution of lighting measures through the Conservation Kit program were $3,333,954, while ongoing Neighborhood Power programs cost $257,570 in 2001 ($23,716 for measure installation), and $8,549,788 over the period 1994-2002. These represent costs to the utility, and not the total resource cost. The Bonneville Power Administration provided $1,643,414 in funding during 1994-1997.

PROGRAM EXPENDITURES FOR THE NEIGHBORHOOD POWER LIGHTING, WEATHERIZATION & WARM HOME PROGRAMS — Completed Projects —

Year	*Administration* (5)	*Measure Installation* (6)	*Total Expenditures*
1994	$676,471	$1,715,497	$2,391,968
1995	803,719	2,586,764	3,390,483
1996	535,468	767,378	1,302,846
1997	200,919	121,884	322,803
1998	119,698	5,497	125,196
1999	232,360	14,374	246,734
2000	286,915	13,363	300,278
2001	366,934	3,224,610	3,591,544
2002	206,622	5,269	211,890
Total	**$3,429,106**	**$8,454,636**	**$11,883,742**

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

FINANCIAL EFFICIENCY MEASURES FOR THE NEIGHBORHOOD WEATHERIZATION & WARM HOME PROGRAMS — Per Completed Unit — (7)

Year	*Average Administration*	*Average Installation*	*Average Total Expenditure*	*Administration as a % of Total Expenditures*
1994	$2,168	$5,498	$7,667	28.3%
1995	805	2,592	3,397	23.7
1996	584	837	1,421	41.1
1997	695	422	1,117	62.2
1998	777	36	813	95.6
1999	1,509	93	1,602	94.2
2000	1,760	82	1,842	95.5
2001	1,785	181	1,966	90.8
2002	7,178	229	7,407	96.9
Avg. 1994-2001	**$991**	**$1,683**	**$2,674**	**37.1%**

BPA FUNDING FOR THE WARM HOME PROGRAM (8)

Year	*Administration*	*Weatherization*	*Total Funding*
1994	$4,112	$262,288	$266,400
1995	0	825,300	825,300
1996	0	549,636	549,636
1997	0	2,078	2,078
1998-2002	0	0	0
Total	**$4,112**	**$1,639,302**	**$1,643,414**

Notes

1. The weighted average measure life over the period 1994-2002 was: 30 years (1994-1995); 28 years (1996); 26 years (1997); 15 years (1998); 13 years (1999); 12 years (2000); 7 years (2001); and 6 years (2002).

2. Multiplex buildings contain two to four residential units. Among single-family buildings where weatherization work was contracted in 1994, 396 were owner-occupied and 130 were rental units. In 1995, 619 were owner-occupied and 219 were rental units. Combining rental units in single-family and multiplex buildings, the proportion served that is occupied by renters was 45% in 1994 and 47% in 1995.

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

The typical energy usage figures are from the Seattle City Light "1990 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 1992) and "2000 Residential Customer Characteristics Survey" (A. Geist, Finance Division, 2002.)

3. Participation figures include the number of homes where weatherization work was completed. These figures came from program records in the EMSD's Community Conservation Section. From 1994 through 2002 the program served 634 units in 235 multiplex buildings of these types:

	Duplexes	Triplexes	Fourplexes	Total Multiplexes	Total Units
1994	38	23	12	73	193
1995	65	30	30	125	340
1996	15	3	5	23	59
1997	5	2	4	11	32
1998	0	0	0	0	0
1999	1	0	0	1	2
2000	0	0	0	0	0
2001	0	0	1	1	4
2002	0	0	1	1	4

4. Energy savings calculations are based on building simulations performed by the Policy & Planning Section. The average electricity savings per unit in 1994-1995 for single-family homes were 2,664 kWh and for multiplex units were 2,044 kWh annually. When the window measure was discontinued and the program was restructured, energy savings for 1996-1997 were revised to 1,839 kWh per single family unit and 1,353 kWh per multiplex unit. During 1996, water heater setbacks were added to the Warm Home measures, with added savings credited for "green audits".

Energy savings from "green audit" water heater setbacks are calculated at the rate of 61.2 kWh per degree of setback for single family units (3.4 kWh/°F for standby and 57.8 kWh/°F recovery, assuming average usage of 64 gallons per day). The assumptions for multiplex units are 48.6 kWh per degree of setback for multiplex units (3.4 kWh/°F for standby and 45.2 kWh/°F recovery, assuming average usage of 50 gallons per day). In 1996-1997 the average setback was 15°F. Other energy savings assumptions for "green audits" were: 300 kWh per efficient-flow showerhead, 50 kWh per kitchen aerator, 15 kWh per bath faucet aerator, and 60 kWh per compact fluorescent screw-in lamp.

First year energy savings from all new participants who completed work were: 768 MWh (1994); 2,515 MWh (1995); 1,495 MWh (1996); 369 MWh (1997); 163 MWh (1998); 226 MWh (1999); 222 MWh (2000); 21,891 MWh (2001); and 600 MWh (2002).

5. Program expenditures for City Light EMSD administration includes the following: salaries, wages, and labor-related costs for field staff and administrative support; office and operating supplies; advertising; contracted operations and maintenance; data processing; and contract unit services.

The sources of these administrative data in 1994-2002 are from the Seattle Financial Management System and Summit System for Activity/Work Order Nos. 70505, 70553 and 70575. These figures do not reflect BPA funding.

Administrative costs for 1994-2002 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general

NEIGHBORHOOD POWER PROGRAMS: LIGHTING, WEATHERIZATION & WARM HOME

expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. In 1994 the A&G overhead charge for *Warm Home* was $195,271, or 29% of Seattle City Light's total programmatic administrative expenditures; in 1995 it was $277,046 (34%).

6. Program weatherization costs were compiled from year-end SFMS and Summit reports from the City Light Finance Division for Activity/Work Order Nos. 70575 and 70505. These figures in 1994-1996 include accruals for work partially completed at year end. While the average installation cost for work completed appeared to be $6,889 in 1994, this calculation was based on accrued costs (included incomplete jobs) divided by buildings completed. The average measure cost for jobs contracted in 1994 was $2,908.

   Also added in 2001 are Conservation Kit (CFL) program costs charged to Activity/Work Order No. 70538. Administrative costs for this program were $133,061 in 2001 while measures cost $3,200,894.

   These figures reflect the total cost of measure installation (including costs incurred by the customer in excess of program allowances). The customer pays these monies directly to the contractor. Presented below are the annual excess payments in nominal dollars by customers as contracted from 1994-2002:

Year	Annual Excess Pmts	Cumulative Excess Pmts
1994	$ 96,518	$ 96,518
1995	122,985	219,503
1996	73,698	293,201
1997	24,672	317,873
1998	5,859	323,732
1999	10,705	334,437
2000	11,361	345,798
2001	8,342	354,140
2002	1,974	356,114

   Financial efficiency measures are calculated for the *Neighborhood Power* programs, and exclude costs of the 2001 compact fluorescent lighting (CFL) one-time distribution programs (charged to Activity/Work Order No. 70538).

7. Financial efficiency measures are calculated per residential unit for weatherized homes and homes participating in green audits. Excluded are costs for CFL distribution programs charged to Activity/ Work Order No. 70538. Distribution of CFLs cost, on average, one dollar in administrative expenses and $18 in measure costs per participating household; administration as a percentage of total expenditures was 4.0%. Administrative costs per housing unit served appear unusually high in 2002 due to the low number of green audits performed that year.

8. These data are based on invoices to the BPA during calendar years 1994-1997.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Description

Begun in 1997, the LightWise, WashWise, and LaundryWise programs have been operating in conjunction with the Northwest Energy Efficiency Alliance (NEEA). The purpose of the *Residential Retail-Wise* programs is to increase the installation of energy efficient appliances and lighting during normal replacement. In addition to supporting the NEEA market-transformation programs, Seattle City Light and Seattle Public Utilities offer direct rebates for qualifying laundry appliances.

Residential Efficient Lighting: Seattle City Light began promoting efficient residential lighting in 1990 with presentations to Block Watch groups about the benefits of compact fluorescent light bulbs. Informational booklets for residential and small business customers followed that same year. The utility conducted a comprehensive customer lighting survey in 1991 to gauge interest in the new technology and replacement potential.

During the next few years City Light took the lead in transforming the market for efficient residential lighting products. In 1992 the utility coordinated a pioneering regional market-transformation lighting program funded by the Bonneville Power Administration (BPA). While negotiating with the BPA, City Light worked with the Puget Sound Energy and Tacoma Power utilities (then Puget Power & Light and Tacoma City Light). Together, in 1993-1995, these three utilities implemented the *Puget Sound Lighting* program, a catalog of efficient bulbs and fixtures for residential customers.

Finally in 1996, the BPA approved a four-state regional manufacturer buy-down style program called *LightSaver*. This program offered residential customers reduced prices on a variety of high quality compact-fluorescent bulbs in retail stores. For every participating bulb shipped into the territory, the BPA paid the manufacturer $5.00. During the first year, two lighting manufacturers took part, Osram-Sylvania and Lights of America. LightSaver was the first of the market-transformation programs approved by the BPA after it cut funding to general conservation programs in the fall of 1995. Seattle played a key leadership role, networking extensively with regional and national utilities and groups involved with energy efficient lighting, to get this program off the ground. In 1997 the name of the new program was changed to *LightWise*.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

LightWise: LightWise was a regional multi-utility program that offered reduced in-store prices on a variety of high quality compact fluorescent light-bulbs. The price discounts were provided by Northwest utilities in collaboration with the NEEA. Qualifying products were first identified in the store by a yellow-and-black LightWise sticker on the package. In 1999 the regional program again changed its name, to *Energy Star Lighting,* to include both energy efficient bulbs and fixtures. By this time there were six participating manufacturers of bulbs and five of fixtures. This is the label currently found on qualifying models in area stores. Also in 1999, Seattle took part in the first Torchiere Turn-In event, where customers handed over dangerous halogen floor lamps and replaced them with discounted efficient compact-fluorescent models. In 1997-2000 these lighting programs brought 62,494 qualifying light bulbs and 11,912 fixtures into stores in the Seattle City Light service area, potentially saving 4,836 MWh per year when installed. The 2001 Conservation Kit distribution program (reported under *Neighborhood Power Programs*) induced retail 'spillover' purchasing of 166,418 CF bulbs during 2001, the impact of which is reported here in 2002. City Light customers were also sent *Energy Star Coupons* during 2001-2002 to encourage retail sales of compact fluorescent light bulbs and fixtures. In all, 22,171 bulbs and fixtures purchased with these coupons were acquired from retail stores in the Seattle City Light services area and installed in area homes.

Residential Efficient Appliances: During the years 1993-1996, Seattle City Light took the lead in transforming the market for efficient clothes washing machines. In 1993 The High Efficiency Laundry Metering & Marketing Analysis (THELMA) was launched. THELMA was a market analysis coupled with laboratory testing and end-use metering of efficient residential clothes washers. These primarily have a horizontal axis and clean with less water, energy, and laundry chemicals. The study also was designed to assess market barriers, opportunities, and in-field impacts on resource savings, to pave the way for a market transformation program. Early collaborators included EPRI (the Electric Power Research Institute), Seattle Water Department, and METRO-Wastewater, as well as the BPA, Puget (Sound) Power, and Tacoma Public Utilities. The project, initiated by City of Seattle utilities, attracted a high level of interest. THELMA was eventually sponsored by an international consortium of 29 energy and water utilities and related organizations, including EPRI and the US Department of Energy. By 1995, Seattle City Light had been chosen for an *EPRI Innovator Award*, based on work coordinating the national research project on energy efficient horizontal-axis clothes washing machines.

THELMA completed most phases of research in 1995 to confirm the potential energy and water savings of tumble-action clothes washers. The research paved the way for a regional market transformation program involving many Puget Sound area utilities. Seattle City Light's staff chairing the THELMA project was appointed chair of the regional market transformation program, as well as the national Consortium for Energy Efficiency (CEE) Washer Committee. Seattle also received the EPRI *End Use Leadership Award* for the support and promotion of energy efficient clothes washers. The BPA approved market transformation money for the

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

follow-on program, *WashWise*, in fall 1995, beginning with marketing and informational campaigns. The results from THELMA have also been used to support development of improved federal efficiency standards and labeling for clothes washers.

WashWise: WashWise is a regional, multi-utility program that offered instant, in-store rebates plus possible additional mail-in rebates, on the purchase of new resource efficient clothes washers. All but one of the qualifying in-home models are front loaders, and all use a tumble action process to clean clothes. Tumble-action washers are preferred over conventional top-loading agitator models because qualifying machines use much less energy and water. Purchase prices are higher than for conventional machines with comparable features, but operating costs are lower in the long run. Direct financial support for program advertising comes from the NEEA. The Alliance also provided an in-store rebate of $130 during 1997, which was reset at $75 for 1998, then discontinued in September 1998 with the inauguration of NEEA's Energy Star labeling program. Since then, Seattle City Light has offered a $50 mail-in rebate per qualifying installed clothes washer (fuel-blind), while Seattle Public Utilities (Water & Waste Water) matches this with an additional $50 mail-in rebate. In 2002, Seattle City Light's $50 rebate was offered in January and during a special promotion during October-November; the standard rebate was lowered to $37.50 during the rest of the year.

In 1997-2002 retailers sold 17,086 rebate-qualified WashWise machines in the Seattle City Light service area, potentially saving over 3,246 MWh per year on electricity. (1)

LaundryWise: The LaundryWise program offers incentives for installing similar coin-operated tumble-action clothes washing machines in multifamily building common laundries. City Light is responsible for marketing the laundry appliance program to customers and dealer participants, for database management and quality control. In 1997-2002 property managers installed 602 rebate-qualified LaundryWise machines, acquiring 464 MWh in annual energy savings. (1)

Other Appliances: In a related appliance activity, Seattle City Light helped arrange for delivery of 410 super-efficient refrigerators for low-income housing within the service area. During 1997, installation of these medium-sized refrigerators garnered 201 MWh in annual energy savings.

Eligible Population

These programs serve the 308,564 utility customers residing in single-family homes, multiplexes, mobile homes, condominiums, and multifamily apartment buildings (including common area laundry rooms) within the Seattle City Light service area. A total population of 690,000 lives in Seattle City Light's 131 square mile service area. (2)

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Lifetime of Conservation Measures Installed

6 years for LightWise compact fluorescent (CFL) bulbs, 12 years for Energy Star CFL fixtures, 13 years for WashWise in-home clothes washers, and 5 years for LaundryWise coin-operated clothes washers. The weighted average lifetime of *Retail-Wise* measures in 1997-1999 is 8 years.

Electricity Savings

The average LightWise compact-fluorescent bulb or Energy Star CFL fixture saves about 65 kilowatt-hours (kWh) per year. Those bulbs and fixtures purchased with *Energy Star Coupons* save about 52 kWh per year, while the typical CF bulb bought due to 'spillover' purchasing from the Conservation Kit program saves about 55 kWh per year. The average WashWise tumble-action clothes washer saves about 285 kWh per year in homes with electric water heat. Since about one-third of program participants heat their water with natural gas, weighted average savings of 190 kWh per machine are used in energy savings calculations for this program. The average LaundryWise coin-operated tumble-action clothes washer saves about 770 kWh per year.

In 2002 the energy savings from cumulative (1992-2002) *Retail-Wise* participants were 19,653 megawatt-hours (MWh). The load reduction in 2002 due to this program was 2.243 average megawatts (aMW).

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

ELECTRICITY SAVINGS FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

Year	Buildings by Year	Units by Year (3)	Cumulative Units	kWh Savings per Unit (4)	MWh Savings in Year (4)	Avg. MW Load Reduction in Year
1997	NEEA LightWise	17,762	17,762	65	1,155	0.132
	NEEA WashWise	517	517	190	98	0.011
	Efficient Refrigerators	410	410	490	201	0.023
	Annual Total	—	—	—	1,454	0.166
1998	NEEA LightWise	19,617	37,379	65	2,430	0.277
	NEEA WashWise	1,871	2,388	190	454	0.052
	SCL WashWise	282	282	190	54	0.006
	SCL LaundryWise	91	91	770	70	0.008
	Efficient Refrigerators	0	410	490	201	0.023
	Annual Total	—	—	—	3,208	0.366
1999	Energy Star Lighting	28,604	65,983	65	4,289	0.490
	Energy Star Washers	1,240	3,628	190	689	0.079
	SCL WashWise	2,238	2,520	190	479	0.055
	SCL LaundryWise	165	256	770	197	0.023
	Efficient Refrigerators	0	410	490	201	0.023
	Annual Total	—	—	—	5,855	0.668
2000	Energy Star Lighting	8,423	74,406	65	4,836	0.552
	Energy Star Washers	0	3,628	190	689	0.079
	SCL WashWise	5,300	7,820	190	1,486	0.170
	SCL LaundryWise	232	488	770	376	0.043
	Efficient Refrigerators	0	410	490	201	0.023
	Annual Total	—	—	—	7,588	0.866
2001	Energy Star Lighting	0	74,406	65	4,836	0.552
	Energy Star Coupons	11,143	11,143	52	576	0.066
	Energy Star Washers	0	3,628	190	689	0.079
	SCL WashWise	4,655	12,475	190	2,370	0.271
	SCL LaundryWise	63	551	770	424	0.048
	Efficient Refrigerators	0	410	490	201	0.023
	Annual Total	—	—	—	9,097	1.038
2002	Energy Star Lighting	0	74,406	65	4,836	0.552
	Energy Star Coupons	11,028	22,171	52	1,146	0.131
	CF Kit Spillover	166,418	166,418	55	9,070	1.035
	Energy Star Washers	0	3,628	190	689	0.079
	SCL WashWise	4,611	17,086	190	3,246	0.371
	SCL LaundryWise	51	602	770	464	0.053
	Efficient Refrigerators	0	410	490	201	0.023
	Annual Total	—	—	—	19,653	2.243
Electricity Savings Since Start of Program:					**46,855**	**MWh**

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Program Expenditures

From 1992 through 2002, Seattle City Light has promoted efficient residential lighting and the LightWise Program with total expenditures to date of $336,107. Expenditures in 1992-1996 were mainly for information services, standards and product development. Research and development of efficient appliance options, including the THELMA clothes washer research project, received $288,317 in support from the utility from 1993 through 1999. Expenditures for implementation of the WashWise and LaundryWise programs totaled $1,015,341 from 1996 through 2002.

Seattle City Light has expended a total of $1,665,299 on Residential Retail Wise Programs between 1992 and 2002. This represents the cost to the utility, and not the total resource cost. Incorporating prorated indirect contributions from other utilities and agencies, the total cost of operating the Retail-Wise Lighting and Appliance Programs in 1997-2002 was about $3,837,000. This excludes the cost to customers for retail 'spillover' purchasing of CF bulbs directly influenced by the 2001 Conservation Kit program.

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
Residential Lighting Program:			
1992	$11,020	$0	$11,020
1993	38,028	0	38,028
1994	15,586	0	15,586
Total	$64,634	$0	$64,634
SCL LightWise & Coupon Programs:			
1994	$19,556	$0	$19,556
1995	45,738	13,935	59,674
1996	47,566	0	47,566
1997	21,937	0	21,937
1998	10,804	9,758	20,562
1999	27,666	6,874	34,539
2000	55,045	0	55,045
2001	12,541	0	12,541
2002	20,145	0	20,145
Total	$260,998	$30,567	$291,565

(Cont'd.)

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

(Continued)

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
Residential Appliance Program:			
1993	$74,045	$0	$74,045
1994	90,445	0	90,445
1995	47,480	0	47,480
1996	22,527	0	22,527
1997	24,622	0	24,622
1998	12,151	0	12,151
1999	4,695	0	4,695
2000	4,593	0	4,593
2001	7,759	0	7,759
2002	5,441	0	5,441
Total	$293,758	$0	$293,758
SCL WashWise Program:			
1996	$4,842	$0	$4,842
1997	11,486	0	11,486
1998	31,929	14,100	46,029
1999	15,201	111,900	127,101
2000	34,619	265,000	299,619
2001	10,228	258,950	269,178
2002	20,293	162,587	182,880
Total	$128,598	$812,537	$941,135
SCL LaundryWise Program:			
1998	$6,672	$4,550	$11,222
1999	12,555	8,250	20,805
2000	12,183	11,600	23,783
2001	5,874	3,180	9,054
2002	6,792	2,550	9,342
Total	$44,076	$30,130	$74,206

(Cont'd.)

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

SEATTLE CITY LIGHT PROGRAM EXPENDITURES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

(Continued)

Year	*Administration* (5)	*Measures* (6)	*Total Funding*
Program Totals 1992-2002:			
1992	$11,020	$0	$11,020
1993	112,073	0	112,073
1994	125,587	0	125,587
1995	93,219	13,935	107,154
1996	74,934	0	74,934
1997	58,045	0	58,045
1998	61,556	28,408	89,964
1999	60,117	127,024	187,141
2000	106,441	276,600	383,041
2001	36,402	262,130	298,532
2002	52,670	165,137	217,808
Total	**$792,064**	**$873,234**	**$1,665,299**

BPA FUNDING FOR THE RETAIL-WISE LIGHTING PROGRAM

Year	*Administration* (7)	*Incentives*	*Total Funding*
2001	$4,273	$0	$4,273
2002	17,898	0	17,898
Total	**$22,171**	**$0**	**$22,171**

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

VALUE OF CONTRIBUTIONS FROM OTHER AGENCIES FOR THE RETAIL-WISE LIGHTING AND APPLIANCE PROGRAMS

Year	***Contributions*** (8)
LightWise / Energy Star Programs:	
1997	$91,300
1998	187,700
1999	232,000
2000	165,300
2001	219,700
2002	199,500
Total	$1,095,500
WashWise / Energy Star Programs:	
1997	$226,400
1998	336,300
1999	111,200
2000	133,200
2001	114,300
2002	154,800
Total	$1,076,100
Total 1997-2002	**$2,171,600**

Notes

1. The amount of WashWise rebate customers receive depends on the location of their residence. Seattle City Light customers receive a total of $100 ($50 from SCL and $50 from Seattle Public Utilities, SPU) in a single check. SPU extends their rebate offer to retail customers in their purveyor districts, and these folks only receive $50 from SPU.

   The list of qualifying models is drawn directly from the Consortium for Energy Efficiency's (CEE) list. CEE acts as a national clearinghouse for laboratory test data and updates its list with great speed. Currently the majority of qualifying machines employs a tumble action cleaning method, but two distinct agitator-type units gained qualification in the past year. All of the tumble action machines except one are front-loading. Both agitator-type machines are top loading. All qualifying machines use much less water and energy than conventional washers do.

   At its inception in mid-1997, NEEA provided the majority of the financial support for WashWise advertising and instant, in-store rebates. Water providers like SPU and wastewater utilities like the Lacey–Olympia–Tumwater–Thurston County (LOTT) Wastewater Partnership offered additional mail-in rebates. In September 1998, SCL instituted a $50, fuel-blind rebate to its customers through the mail-in mechanism SPU had already put in place; SPU carries the bulk of the administrative duties for the current City of Seattle WashWise program.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

Collaborators on the LaundryWise Program include Seattle City Light, Seattle Public Utilities, Puget Sound Energy, the LOTT Wastewater Partnership, and the City of Kent. Each utility pays its own rebates for installation of qualifying resource efficient clothes washers in multifamily common area laundry rooms, but SCL functions as the clearinghouse for rebate applications. The schedule for rebate payments is as follows: $50 per machine for SCL direct service customers who heat their water with electricity; $50 per machine for SPU direct service customers and customers of its wholesale customers; $50 per machine for PSE direct service customers who heat their water with electricity; $100 per LOTT machine; and $50 per City of Kent machine.

2. The eligible population figures are from the *Seattle City Light Customer Information Guide* (October 1999).

3. SCL program participant figures include all rebates approved by City Light in 1997-1999, taken from Seattle Public Utility quarterly invoices. NEEA program participants within the Seattle City Light service territory are reported to Marci Sanders, Northwest Energy Efficiency Alliance, on a monthly basis by the contractor who maintains the "spiff" funding mechanism for tracking sales.

4. The energy savings per measure are based on projections of savings by the Community Conservation Section, drawing from regional research projects and local parameters. Each lighting program participant is deemed to save 65 kWh per lamp or fixture. By year, the numbers of NEEA LightWise bulbs delivered to area stores were: 17,762 (1997); 12,746 (1998); 25,750 (1999); and 6,236 (2000). The numbers of NEEA Energy Star fixtures delivered by year were: 6,871 (1998); 2,854 (1999); and 2,187 (2000).

   The average WashWise tumble-action clothes washer saves about 285 kWh per year in homes with electric water heat. Since about one-third of program participants heat their water with natural gas, weighted average savings of 190 kWh per machine are used in energy savings calculations for this program. Energy savings are 770 kWh per LaundryWise coin-operated clothes washer (assuming all electric water heat installations), and 490 kWh per super-efficient refrigerator.

   First year energy savings from new participants installing all types of qualifying RetailWise measures in each year were: 1,454 MWh (1997); 1,754 MWh (1998); 2,647 MWh (1999); 1,733 MWh (2000); 1,509 MWh (2001); and 10,556 MWh (2002).

5. Cost data for 1992-2002 incorporate expenditures for administrative labor, office supplies, travel, printing, and customer rebates. Cost data for 1992-2002 are from the Seattle Financial Management System and the Summit System for Activity/Work Order Nos. 70549, 70555, 70564, and 70579.

   Administrative costs for 1993-1999 include an A&G overhead charge (begun in April 1993) for utility administrative and general expenses. This charge distributes departmental administrative and general expenses, including nonprogrammatic labor and expenses, to individual conservation programs in proportion to programmatic labor hours. There were no A&G overhead charges to the *Retail-Wise* programs in 1993. In 1994 the A&G overhead charge was $5,984, or 5% of total programmatic administrative expenditures; in 1995 it was $14,510 (16%). By comparison, in 1999 the A&G service overhead charge for the *Retail-Wise* programs was $8,917, or 15% of total administrative expenditures.

RETAIL-WISE LIGHTING & APPLIANCE PROGRAMS

6. Measure costs are documented in the Seattle Financial Management and Summit Systems as interdepartmental invoice payments (Seattle Public Utilities track and pay the combined-utility washer rebate) and as vendor purchases of compact fluorescent bulbs for distribution through efficient lighting informational activities.

7. Bonneville Power Administration remitted $4,273 (2001), and $17,898 (2003) to Seattle City Light in reimbursement for the Energy Star Coupon program, which provided all City Light customers with a $6-discount at retail outlets on purchase of qualifying compact fluorescent light (CFL) bulbs and fixtures.

8. The Northwest Energy Efficiency Alliance (NEEA) has provided considerable in-kind support to the regional LightWise and Energy Star Programs. NEEA provided two contractors to run the regional incentive programs and track rebate payments to manufacturers. NEEA continues to produce and print brochures and collateral materials for point-of-sales promotion and informational services. NEEA also provided considerable support for two halogen-torchiere turn-in programs in the City of Seattle.

   Since Seattle City Light's service area contained about 8.0% of the 1997 households and population in the Pacific Northwest territory, NEEA expenditures were prorated by that proportion in this table. During 1997-2002 NEEA expended $13,693,735 for the LightWise and Energy Star residential lighting program, and $13,450,888 on the WashWise and Energy Star clothes-washer program. NEEA has provided the following proportions of delivery cost (the sum of direct expenditures and in-kind support) for the RetailWise Lighting and Appliance Programs: 85% (1997); 85% (1998); 65% (1999); 44% (2000); 53% (2001); and 64% (2002)